

Washington Water Supply Outlook Report January 1, 2009



Water Supply Outlook Reports and Federal - State – Private Cooperative Snow Surveys

For more water supply and resource management information, contact:

Local Natural Resources Conservation Service Field Office

or

**Scott Pattee
Water Supply Specialist
Natural Resources Conservation Service
2021 E. College Way, Suite 214
Mt. Vernon, WA 98273-2873
(360) 428-7684**

or

**Ron Nichols
Public Affairs Specialist
Natural Resources Conservation Service
W 316 Boone Ave., Suite 450
Spokane, WA 99201
(509) 323-2912**

How forecasts are made

Most of the annual streamflow in the western United States originates as snowfall that has accumulated in the mountains during the winter and early spring. As the snowpack accumulates, hydrologists estimate the runoff that will occur when it melts. Measurements of snow water equivalent at selected manual snow courses and automated SNOTEL sites, along with precipitation, antecedent streamflow, and indices of the El Niño / Southern Oscillation are used in computerized statistical and simulation models to prepare runoff forecasts. These forecasts are coordinated between hydrologists in the Natural Resources Conservation Service and the National Weather Service. Unless otherwise specified, all forecasts are for flows that would occur naturally without any upstream influences.

Forecasts of any kind, of course, are not perfect. Streamflow forecast uncertainty arises from three primary sources: (1) uncertain knowledge of future weather conditions, (2) uncertainty in the forecasting procedure, and (3) errors in the data. The forecast, therefore, must be interpreted not as a single value but rather as a range of values with specific probabilities of occurrence. The middle of the range is expressed by the 50% exceedance probability forecast, for which there is a 50% chance that the actual flow will be above, and a 50% chance that the actual flow will be below, this value. To describe the expected range around this 50% value, four other forecasts are provided, two smaller values (90% and 70% exceedance probability) and two larger values (30%, and 10% exceedance probability). For example, there is a 90% chance that the actual flow will be more than the 90% exceedance probability forecast. The others can be interpreted similarly.

The wider the spread among these values, the more uncertain the forecast. As the season progresses, forecasts become more accurate, primarily because a greater portion of the future weather conditions become known; this is reflected by a narrowing of the range around the 50% exceedance probability forecast. Users should take this uncertainty into consideration when making operational decisions by selecting forecasts corresponding to the level of risk they are willing to assume about the amount of water to be expected. If users anticipate receiving a lesser supply of water, or if they wish to increase their chances of having an adequate supply of water for their operations, they may want to base their decisions on the 90% or 70% exceedance probability forecasts, or something in between. On the other hand, if users are concerned about receiving too much water (for example, threat of flooding), they may want to base their decisions on the 30% or 10% exceedance probability forecasts, or something in between. Regardless of the forecast value users choose for operations, they should be prepared to deal with either more or less water. (Users should remember that even if the 90% exceedance probability forecast is used, there is still a 10% chance of receiving less than this amount.) By using the exceedance probability information, users can easily determine the chances of receiving more or less water.

"The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint of discrimination write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410 or call (800) 795-3272 (voice) or (202) 720-6382 (TDD). USDA is an equal opportunity provider and employer."

Washington Water Supply Outlook

January 2009

General Outlook

Washington started very slow with snow accumulation but made a comeback the last two weeks of December. The first week of January helped even more but also brought statewide flooding concerns. October started the water-year with mostly below average rainfall, near normal precipitation in November helped the overall cause but lacked the high mountain snow fall that we would normally receive. Forecasters are predicting dry and warm conditions for the next 6-10 days. Long term predictions bring back cooler than normal temperatures but precipitation forecasts are undecided through the end of March. Mid January also marks the average mid point for annual snow accumulation so being on track now is paramount for a fully successful season.

Snowpack

The January 1 statewide SNOTEL readings were 81% of average, up from only 29% just 15 days before. By the time of this printing we had increased to 106%. The Conconully Lake area snow surveys reported the lowest readings at 40% of average. Readings in the Tolt River Basin in King County reported the highest at 129% of average. Westside averages from SNOTEL, and January 1 snow surveys, included the North Puget Sound river basins with 76% of average, the Central Puget river basins with 109%, and the Lewis-Cowlitz basins with 94% of average. Snowpack along the east slopes of the Cascade Mountains included the Yakima area with 77% and the Wenatchee area with 62%. Snowpack in the Spokane River Basin was at 81% and the Walla Walla River Basin had 99% of average. Maximum snow cover in Washington was at Paradise SNOTEL near MT. Rainer, with water content of 24.5 inches. Last year at this time Paradise had 34.4 inches of snow water. The highest average in the state was at Mowich SNOTEL with 1275% of average.

BASIN	PERCENT OF LAST YEAR	PERCENT OF AVERAGE
Spokane	84	81
Newman Lake	92	96
Pend Oreille	91	83
Okanogan	61	55
Methow	59	51
Conconully Lake	47	40
Wenatchee	64	65
Chelan	61	54
Upper Yakima	64	76
Lower Yakima	73	78
Ahtanum Creek	65	66
Walla Walla	78	99
Lower Snake	83	82
Cowlitz	74	91
Lewis	72	98
White	76	84
Green	92	106
Puyallup	96	107
Cedar	73	117
Snoqualmie	80	98
Skykomish	102	114
Skagit	60	55
Baker	N/A	N/A
Nooksack	67	96
Olympic Peninsula	54	66

Precipitation

During the month of December, the National Weather Service and Natural Resources Conservation Service climate stations reported well above to well below average precipitation totals throughout Washington river basins. The highest percent of average in the state was shared by Alpine Meadows SNOTEL and Spokane WSO Airport which both reported 166% of average for a total of 26.6 inches and 3.74 inches respectively. The average for Alpine Meadows is 16 inches and 2.25 inches for Spokane for December. The wettest spot in the state was reported at June Lake SNOTEL with a December accumulation of 25.3 inches. October precipitation was mostly well below average across the state where November tried to catch up with near to above average rain fall. Water-year 2008 ended with near average precipitation statewide which provided a good platform for extending decent soil moisture levels into fall. Novembers' precipitation (though lacking normal snow fall) helped build soil moisture levels to near water holding capacity which should help facilitate better runoff this summer.

RIVER BASIN	DECEMBER PERCENT OF AVERAGE	WATER YEAR PERCENT OF AVERAGE
Spokane	109	89
Pend Oreille	95	75
Upper Columbia	73	79
Central Columbia	86	91
Upper Yakima	95	100
Lower Yakima	96	93
Walla Walla	130	100
Lower Snake	128	105
Lower Columbia	87	86
South Puget Sound	97	98
Central Puget Sound	115	114
North Puget Sound	75	84
Olympic Peninsula	73	99

Reservoir

Seasonal reservoir levels in Washington vary greatly due to specific watershed management practices required in preparation for irrigation season, fisheries management, power generation, municipal demands and flood control. Reservoir storage in the Yakima Basin was 519,000-acre feet, 130% of average for the Upper Reaches and 106,000-acre feet or 95% of average for Rimrock and Bumping Lakes. Storage at the Okanogan reservoirs was 28% of average for January 1. The power generation reservoirs included the following: Coeur d'Alene Lake, 52,000 acre feet, 47% of average and 22% of capacity; Chelan Lake, 398,000-acre feet, 100% of average and 59% of capacity; and the Skagit River reservoirs at 100% of average and 82% of capacity. Recent climate impacts and management procedures may change the numbers on a daily or weekly basis.

BASIN	PERCENT OF CAPACITY	CURRENT STORAGE AS PERCENT OF AVERAGE
Spokane	22	47
Pend Oreille	26	61
Upper Columbia	20	28
Central Columbia	59	100
Upper Yakima	62	130
Lower Yakima	46	95
Lower Snake	69	107
Lower Columbia	N/A	N/A
North Puget Sound	82	100

For more information contact your local Natural Resources Conservation Service office.

Streamflow

Forecasts vary from 106% of average for the Cedar River at Cedar Falls to 72% of average for Okanogan River at Malott. April-September forecasts for some Western Washington streams include the Cedar River near Cedar Falls, 100%; White River, 95%; and Skagit River, 86%. Some Eastern Washington streams include the Yakima River near Parker, 90%; Wenatchee River at Plain, 86%; and Spokane River near Post Falls, 88%. Volumetric forecasts are developed using current, historic and average snowpack, precipitation and streamflow data collected and coordinated by organizations cooperating with NRCS. Caution should be used when using early season forecasts for critical water resource management decisions.

Statewide December streamflows were mostly below average due to lack of precipitation during the first part of the month and very cold temperatures later on. The Methow River at Pateros had the highest reported flows with 123% of average. The Yakima River at Kiona with 32% of average was the lowest in the state. Other streamflows were the following percentage of average as reported by the River Forecast Center: the Cowlitz at Castle Rock, 44%; the Spokane at Spokane, 54%; the Columbia below Rock Island Dam, 75%; and the Cle Elum near Roslyn, 61%.

BASIN	PERCENT OF AVERAGE (50 PERCENT CHANCE OF EXCEEDENCE)
-------	---

Spokane	83-90
Pend Oreille	83-89
Upper Columbia	72-93
Central Columbia	83-93
Upper Yakima	88-92
Lower Yakima	80-96
Walla Walla	100-102
Lower Snake	86-94
Lower Columbia	80-100
South Puget Sound	95
Central Puget Sound	100-106
North Puget Sound	80-86
Olympic Peninsula	85-90

STREAM	PERCENT OF AVERAGE DECEMBER STREAMFLOWS
--------	--

Pend Oreille Below Box Canyon	69
Kettle at Laurier	82
Columbia at Birchbank	85
Spokane at Long Lake	53
Similkameen at Nighthawk	109
Okanogan at Tonasket	91
Methow at Pateros	123
Chelan at Chelan	93
Wenatchee at Pashastin	88
Yakima at Cle Elum	56
Yakima at Parker	60
Naches at Naches	54
Grande Ronde at Troy	48
Snake below Lower Granite Dam	68
SF Walla Walla near Milton Freewater	65
Columbia River at The Dalles	71
Lewis at Ariel	40
Cowlitz below Mayfield Dam	45
Skagit at Concrete	52
Dungeness near Sequim	35

For more information contact your local Natural Resources Conservation Service office.

BASIN SUMMARY OF SNOW COURSE DATA

JANUARY 2009

SNOW COURSE	ELEVATION	DATE	SNOW DEPTH	WATER CONTENT	LAST YEAR	AVERAGE 1971-00	SNOW COURSE	ELEVATION	DATE	SNOW DEPTH	WATER CONTENT	LAST YEAR	AVERAGE 1971-00
ALPINE MEADOWS SNTL	3500	1/01/09	73	24.0	25.8	20.1	MOSES MTN SNOTEL	4800	1/01/09	17	3.0	5.1	7.1
ASHLEY DIVIDE	4820	12/30/08	21	3.8	3.0	3.4	MOSQUITO RDG SNOTEL	5200	1/01/09	---	9.8	16.5	15.5
BADGER PASS SNOTEL	6900	1/01/09	45	9.1	14.2	15.2	MOULTON RESERVOIR	6850	12/29/08	18	3.9	2.2	3.5
BARKER LAKES SNOTEL	8250	1/01/09	39	9.1	5.6	6.7	MOUNT CRAG SNOTEL	4050	1/01/09	33	6.0	12.0	11.6
BASIN CREEK SNOTEL	7180	1/01/09	18	4.2	2.1	3.7	MOWICH SNOTEL	3150	1/01/09	23	5.1	3.7	.4
BEAVER PASS SNOTEL	3630	1/01/09	55	10.0	16.4	18.8	MOUNT GARDNER SNOTEL	2860	1/01/09	36	10.3	13.4	7.4
BLACK PINE SNOTEL	7100	1/01/09	29	5.9	5.1	5.2	N.F. ELK CR SNOTEL	6250	1/01/09	25	4.4	3.4	5.1
BLEWETT PASS#2SNOTEL	4270	1/01/09	27	6.9	8.9	8.2	NEVADA RIDGE SNOTEL	7020	1/01/09	26	5.8	6.3	6.8
BUMPING LAKE (NEW)	3400	12/30/08	33	6.6	10.4	7.2	NEZ PERCE CMP SNOTEL	5650	1/01/09	34	5.7	5.9	6.1
BUMPING RIDGE SNOTEL	4600	1/01/09	62	12.1	13.3	12.1	NOISY BASIN SNOTEL	6040	1/01/09	64	14.7	13.3	19.8
BUNCHGRASS MDWSNOTEL	5000	1/01/09	50	10.1	14.4	12.6	OLALLIE MDWS SNOTEL	3960	1/01/09	78	17.4	24.9	22.2
BURNT MOUNTAIN PIL	4200	1/01/09	51	10.9	6.2	5.7	PARADISE PARK SNOTEL	5500	1/01/09	100	24.5	34.4	32.8
CAYUSE PASS SNOTEL	5240	1/01/09	61	17.5	25.9	--	PARK CK RIDGE SNOTEL	4600	1/01/09	55	10.0	23.9	22.5
CHAMOKANE 2	3520	1/06/09	30	6.0	5.6	--	PETERSON MDW SNOTEL	7200	1/01/09	31	5.9	3.4	4.4
CHESSMAN RESERVOIR	6200	12/29/08	12	2.0	.4	1.5	PIGTAIL PEAK SNOTEL	5900	1/01/09	85	20.2	21.6	23.1
COMBINATION SNOTEL	5600	1/01/09	15	2.7	2.5	2.2	PIKE CREEK SNOTEL	5930	1/01/09	28	4.4	10.7	12.0
COPPER BOTTOM SNOTEL	5200	1/01/09	18	3.7	3.7	5.3	PIPESTONE PASS	7200	12/27/08	11	1.6	1.3	2.2
CORRAL PASS SNOTEL	6000	1/01/09	57	12.8	13.6	15.8	POPE RIDGE SNOTEL	3540	1/01/09	41	5.7	11.2	9.8
COUGAR MTN. SNOTEL	3200	1/01/09	44	11.3	12.7	8.5	POTATO HILL SNOTEL	4500	1/01/09	55	11.5	17.2	12.4
COYOTE HILL	4200	12/31/08	20	3.6	4.1	4.3	QUARTZ PEAK SNOTEL	4700	1/01/09	43	9.8	10.6	10.2
DALY CREEK SNOTEL	5780	1/01/09	26	5.1	5.4	4.9	RAGGED MTN SNOTEL	4210	1/01/09	51	12.1	11.8	--
DISCOVERY BASIN	7050	12/31/08	25	5.0	3.0	4.2	RAINY PASS SNOTEL	4780	1/01/09	51	9.1	16.4	19.9
DOMMERIE FLATS	2200	12/29/08	26	5.9	7.6	3.9	REX RIVER SNOTEL	1900	1/01/09	56	14.8	19.5	13.0
DUNGENESS SNOTEL	4100	1/01/09	15	2.4	4.3	3.5	ROCKER PEAK SNOTEL	8000	1/01/09	41	8.8	4.2	6.4
ELBOW LAKE SNOTEL	3200	1/01/09	64	13.3	19.4	8.6	SADDLE MTN SNOTEL	7900	1/01/09	55	10.3	12.1	11.7
EMERY CREEK SNOTEL	4350	1/01/09	35	6.7	5.1	7.0	SALMON MDWS SNOTEL	4500	1/01/09	12	2.1	4.5	5.3
FISH CREEK	8000	12/29/08	25	5.6	3.4	4.4	SASSE RIDGE SNOTEL	4200	1/01/09	49	8.3	16.3	14.7
FISH LAKE	3370	12/29/08	48	9.7	20.4	14.5	SAVAGE PASS SNOTEL	6170	1/01/09	60	10.2	14.0	11.7
FISH LAKE SNOTEL	3370	1/01/09	47	10.3	16.9	15.0	SAWMILL RIDGE	4700	12/30/08	46	10.7	--	13.8
FLATTOP MTN SNOTEL	6300	1/01/09	60	12.1	18.6	21.4	SAWMILL RIDGE SNOTEL	4630	1/01/09	87	20.0	16.0	--
FOURTH OF JULY SUM	3200	1/06/09	---	5.0E	6.2	3.7	SENTINEL BT SNOTEL	4920	1/01/09	21	3.3	2.3	--
FROHNER MDWS SNOTEL	6480	1/01/09	20	3.0	2.2	3.4	SHEEP CANYON SNOTEL	4050	1/01/09	69	17.2	24.0	15.4
GRASS MOUNTAIN #2	2900	12/30/08	37	10.2	--	4.6	SHERWIN SNOTEL	3200	1/01/09	---	5.8	6.9	5.1
GRAVE CRK SNOTEL	4300	1/01/09	25	5.0	6.8	7.7	SKALKAHO SNOTEL	7260	1/01/09	50	8.7	11.6	10.3
GREEN LAKE SNOTEL	6000	1/01/09	42	9.1	11.2	10.7	SKOOKUM CREEK SNOTEL	3920	1/01/09	64	15.8	17.7	10.8
GROUSE CAMP SNOTEL	5380	1/01/09	34	6.9	8.6	9.6	SOURDOUGH GUL SNOTEL	4000	1/01/09	12	4.0	3.2	--
HAND CREEK SNOTEL	5030	1/01/09	31	6.1	5.0	5.9	SPENCER MDW SNOTEL	3400	1/01/09	62	14.0	22.4	12.5
HARTS PASS SNOTEL	6500	1/01/09	52	12.7	19.7	21.7	SPIRIT LAKE SNOTEL	3100	1/01/09	17	5.0	10.6	3.6
HELL ROARING DIVIDE	5770	12/30/08	56	10.4	11.9	13.4	SPOTTED BEAR MTN.	7000	1/01/09	---	4.9E	4.1	6.9
HIGH RIDGE SNOTEL	4920	1/01/09	46	12.6	16.1	10.4	SPRUCE SPGS SNOTEL	5700	1/01/09	29	6.7	10.0	--
HOLBROOK	4530	1/01/09	---	3.5E	4.2	4.2	STAHL PEAK SNOTEL	6030	1/01/09	48	11.1	19.3	17.1
HOODOO BASIN SNOTEL	6050	1/01/09	69	13.0	21.5	19.3	STAMPEDE PASS SNOTEL	3860	1/01/09	65	14.1	20.4	19.4
HUCKLEBERRY SNOTEL	2000	1/01/09	29	6.7	3.4	1.0	STEVENS PASS SNOTEL	4070	1/01/09	65	12.1	18.8	19.1
HUMBOLDT GLCH SNOTEL	4250	1/01/09	---	5.0	8.3	6.0	STORM LAKE	7780	12/31/08	37	8.9	4.7	5.5
JUNE LAKE SNOTEL	3200	1/01/09	79	21.0	26.9	17.1	SUNSET SNOTEL	5540	1/01/09	---	6.5	7.8	13.6
KELLOGG PEAK	5560	1/05/09	56	14.6	14.8	11.7	SURPRISE LKS SNOTEL	4250	1/01/09	73	17.5	22.5	20.3
KRAFT CREEK SNOTEL	4750	1/01/09	25	5.2	4.8	6.9	SWAMP CREEK SNOTEL	4000	1/01/09	37	5.9	8.9	9.6
LESTER CREEK	3100	12/30/08	44	9.4	--	8.5	TEN MILE LOWER	6600	12/29/08	16	3.0	1.6	3.0
LOLO PASS SNOTEL	5240	1/01/09	54	9.6	14.5	13.0	TEN MILE MIDDLE	6800	12/29/08	39	8.2	2.6	4.6
LONE PINE SNOTEL	3800	1/01/09	60	14.5	22.5	16.2	THUNDER BASIN SNOTEL	4200	1/01/09	44	9.1	16.6	15.7
LOOKOUT SNOTEL	5140	1/01/09	43	8.7	13.8	13.7	TINKHAM CREEK SNOTEL	3000	1/01/09	53	11.1	16.6	12.3
LOST HORSE SNOTEL	5000	1/01/09	27	3.4	8.1	8.3	TOGO	3370	1/06/09	31	5.9	6.2	--
LOST LAKE SNOTEL	6110	1/01/09	---	17.0	22.3	27.1	TOUCHET SNOTEL	5530	1/01/09	42	12.3	15.8	14.7
LUBRECHT FOREST NO 3	5450	12/30/08	15	2.2	2.0	2.7	TRINKUS LAKE	6100	1/01/09	---	15.7E	17.0	19.4
LUBRECHT FOREST NO 4	4650	12/30/08	10	1.6	1.3	1.4	TROUGH #2 SNOTEL	5310	1/01/09	12	2.9	4.7	5.3
LUBRECHT FOREST NO 6	4040	12/30/08	11	1.6	1.6	1.6	TRUMAN CREEK	4060	12/30/08	18	3.2	2.6	2.0
LUBRECHT HYDROPLT	4200	12/30/08	14	1.8	2.2	2.5	TUNNEL AVENUE	2450	12/30/08	39	8.7	13.8	8.3
LUBRECHT SNOTEL	4680	1/01/09	13	2.7	2.1	2.6	TV MOUNTAIN	6800	12/30/08	34	7.1	6.9	7.7
LYMAN LAKE SNOTEL	5900	1/01/09	83	16.7	23.0	29.7	TWELVEMILE SNOTEL	5600	1/01/09	43	8.2	9.4	7.5
LYNN LAKE	4000	12/30/08	54	13.8	--	8.2	TWIN CAMP	4100	12/30/08	35	8.1	--	10.2
MARIAS PASS	5250	12/29/08	29	5.0	4.7	7.3	TWIN LAKES SNOTEL	6400	1/01/09	72	14.5	20.1	17.5
MARTEN RIDGE SNOTEL	3520	1/01/09	76	17.7	24.6	--	TWIN SPIRIT DIVIDE	3480	1/03/09	46	9.4	6.3	6.6
MEADOWS PASS SNOTEL	3240	1/01/09	58	13.2	18.5	9.6	UPPER HOLLAND LAKE	6200	1/01/09	---	12.7E	11.8	15.2
M F NOOKSACK SNOTEL	4980	1/01/09	56	12.9	18.5	--	UPPER WHEELER SNOTEL	4400	1/01/09	23	4.5	5.7	5.9
MICA CREEK SNOTEL	4510	1/01/09	43	10.0	12.2	11.7	WARM SPRINGS SNOTEL	7800	1/01/09	54	12.2	9.3	9.4
MINERS RIDGE SNOTEL	6200	1/01/09	80	17.6	24.5	26.6	WATERHOLE SNOTEL	5000	1/01/09	47	10.9	19.6	14.0
MORSE LAKE SNOTEL	5400	1/01/09	65	14.2	24.9	23.4	WHITE PASS ES SNOTEL	4500	1/01/09	48	10.4	10.0	10.7



Natural Resources Conservation Service

Washington State
Snow, Water and Climate Services

Program Contacts

Roylene Rides At The Door
State Conservationist
Spokane State Office
W. 316 Boone Ave., Suite 450
Spokane, WA 99201-2348
phone: 509-323-2961
fax: 509-323-2979
roylene.rides-at-the-door@wa.usda.gov

Scott Pattee
Water Supply Specialist
Washington Snow Survey Office
2021 E. College Way, Suite 214
Mount Vernon, WA 98273-2873
phone: 360-428-7684
fax: 360-424-6172
scott.pattee@wa.usda.gov

Jon Lea
DCO Supervisor
Oregon Data Collection Office
101 SW Main St, Suite 1300
Portland, OR 97204
Phone: 503-414-3267
Fax: 503-414-3277
jon.lea@or.usda.gov

James Marron
Resource Conservationist
National Water and Climate Center
101 SW Main St., Suite 1600
Portland, OR 97204-3224
phone: 503-414-3047
fax: 503-414-3101
jim.marron@por.usda.gov

Helpful Internet Addresses

NRCS Snow Survey and Climate Services Homepages

Washington:
<http://www.wa.nrcs.usda.gov/snow>

Oregon:
<http://www.or.nrcs.usda.gov/snow>

Idaho:
<http://www.id.nrcs.usda.gov/snow>

National Water and Climate Center (NWCC):
<http://www.wcc.nrcs.usda.gov>

NWCC Anonymous FTP Server:
<ftp.wcc.nrcs.usda.gov>

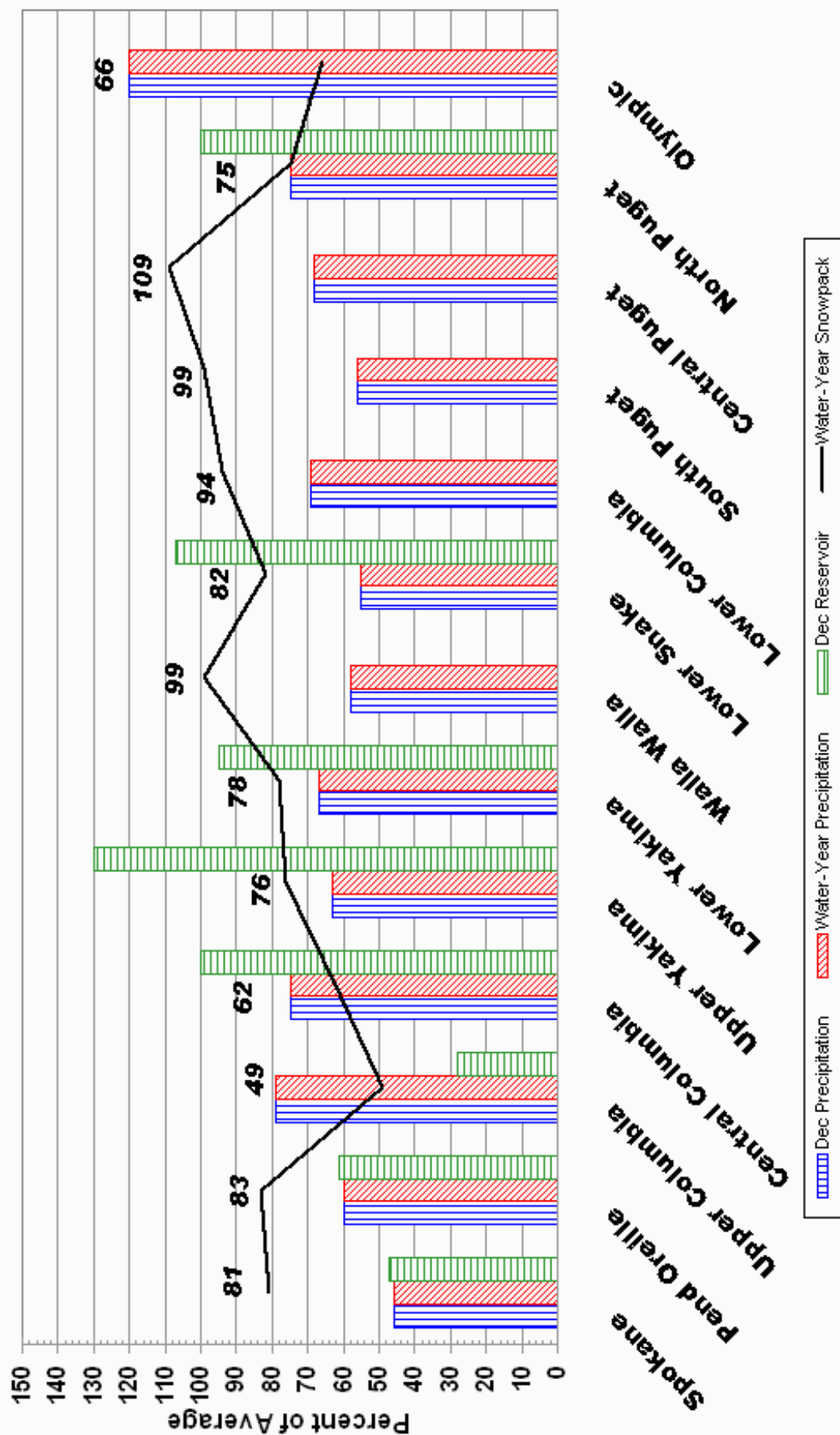
USDA-NRCS Agency Homepages

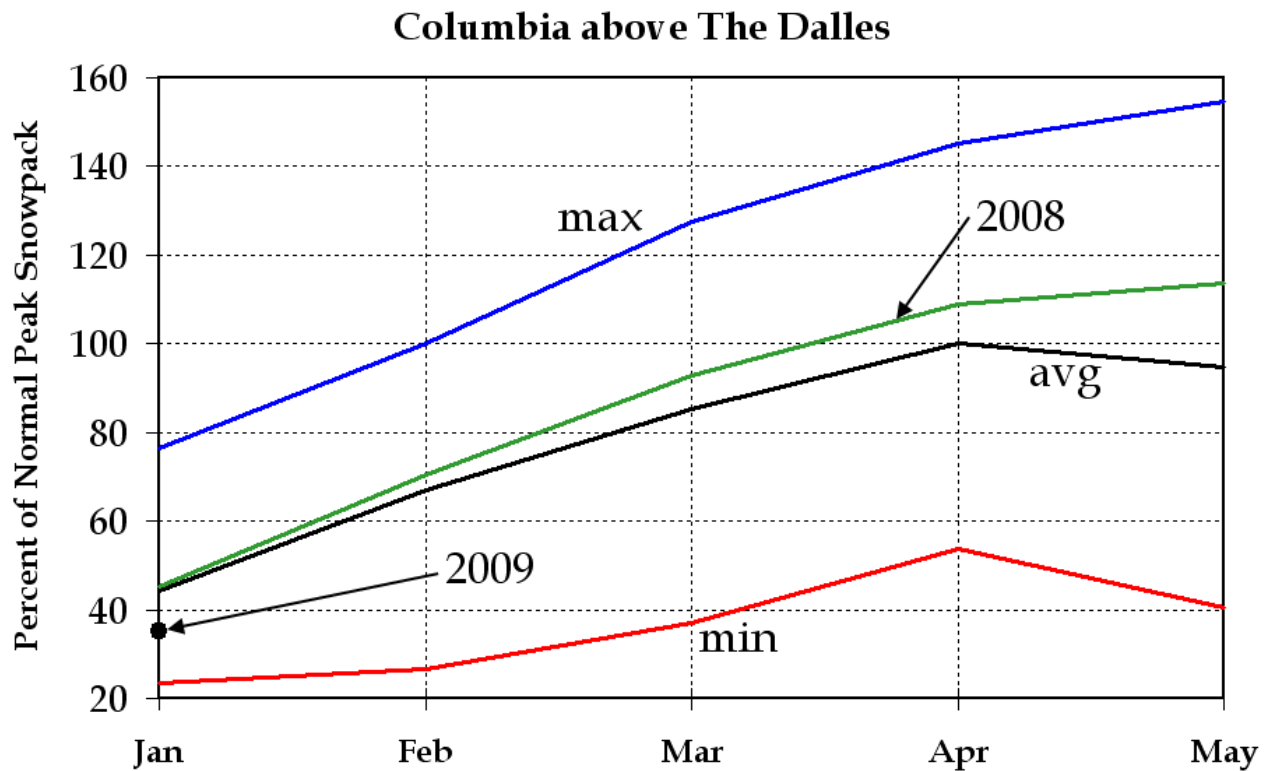
Washington:
<http://www.wa.nrcs.usda.gov>

NRCS National:
<http://www.nrcs.usda.gov>

January 1, 2009 - Snowpack, Precipitation and Reservoir Conditions at a Glance

(Water Year = October 1, 2008 - Current Date)





January 1, 2009

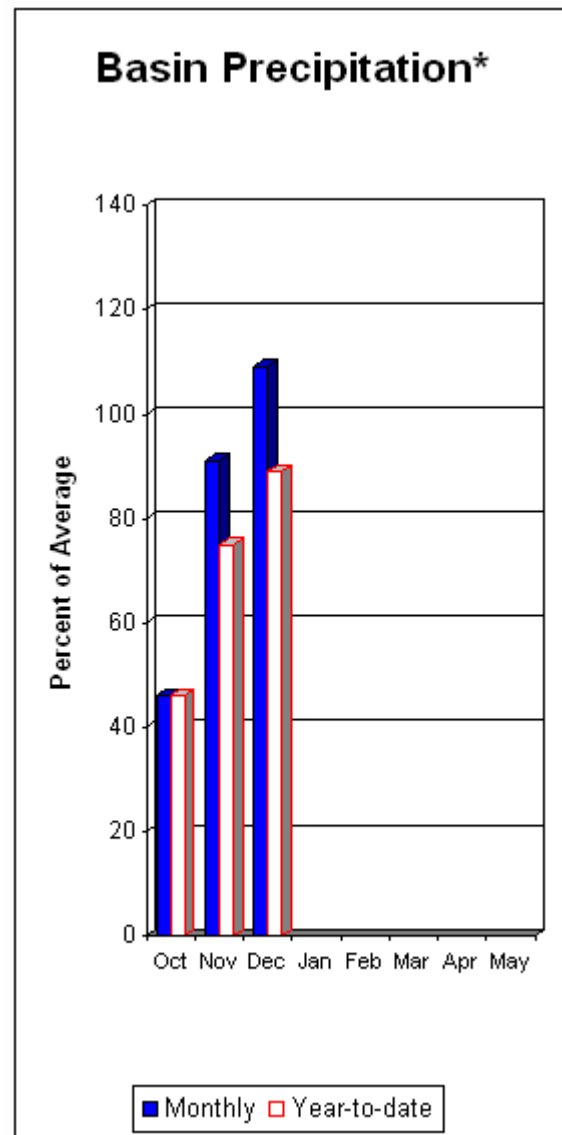
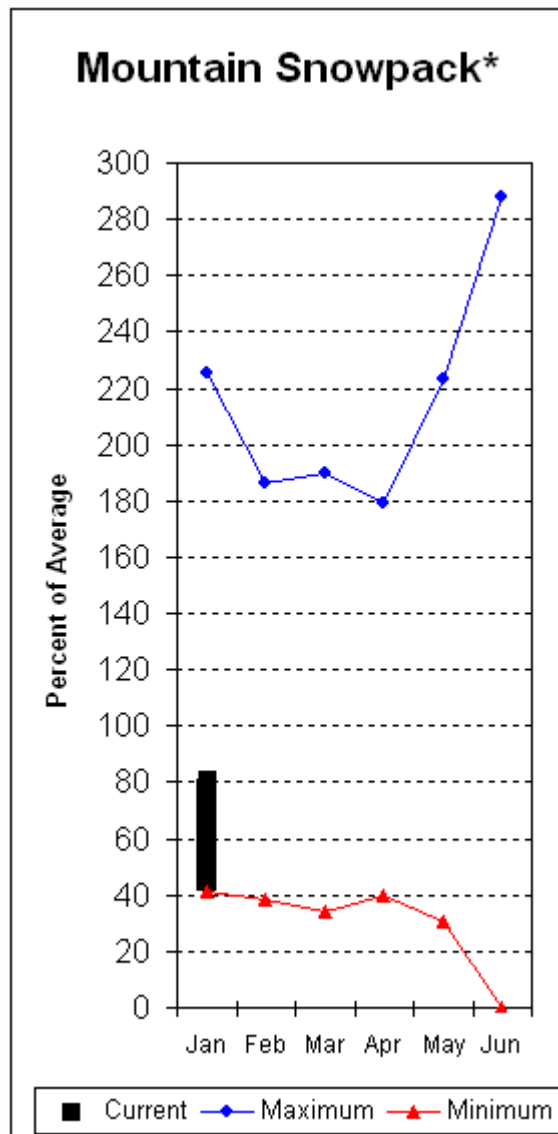
The Columbia Basin snowpack charts are produced, using only automated data. These data are telemetered via remote collection sites in Canada and the United States. The data are provisional, until they are officially released by the responsible data collection agency.

The combined Columbia Basin snowpack above The Dalles is currently at 79 percent of average, compared to 102 percent of average last year. It's early in the season, but the snowpack has a lot of catching up to do. The only area that has an above average snowpack is the Deschutes, at 104 percent. The three largest contributing basins, Columbia headwaters in Canada, Kootenay, and Pend Oreille, have measured snowpack's of 81, 71, and 77 percent, respectively. This does not bode well for water users in the Columbia Basin. The Snake River Basin snowpack's are generally in the low 90's to the high 80's. The overall snowpack above The Dalles is at 35 percent of the average peak accumulation. This compares to 45 percent last year.

The snowpack in the Columbia Basin above Castlegar is at 77 percent of average. This compares to 108 percent last year. For the basin above Grand Coulee, the snowpack is also at 77 percent of average, compared to 103 percent last year. The Snake River snowpack above Ice Harbor is at 87 percent of average, compared to 99 percent last year.

Overall, this is not a good start to the 2009 snowpack accumulation over the Columbia Basin.

Spokane River Basin



*Based on selected stations

The January 1 forecasts for summer runoff within the Spokane River Basin are 88% of average near Post Falls and 90% at Long Lake. The Chamokane River near Long Lake forecasted to have 83% of average flows for the May-August period. The forecast is based on a basin snowpack that is 81% of average and precipitation that is 89% of average for the water year. Precipitation for December was near normal at 109% of average. Streamflow on the Spokane River at Long Lake was 53% of average for December. January 1 storage in Coeur d'Alene Lake was 52,000 acre feet, 47% of average and 22% of capacity. Snowpack at Quartz Peak SNOTEL site was 96% of average with 9.8 inches of water content. Average temperatures in the Spokane basin were 8 degrees below normal for December and near normal for the water year.

For more information contact your local Natural Resources Conservation Service office.

Spokane River Basin

Streamflow Forecasts - January 1, 2009

Forecast Point	Forecast Period	<<===== Drier ===== Future Conditions ===== Wetter =====>						30-Yr Avg. (1000AF)
		=====		Chance Of Exceeding *		=====		
		90% (1000AF)	70% (1000AF)	50% (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	
=====								
SPOKANE near Post Falls (2)	APR-JUL	1540	1960	2240	88	2520	2940	2550
	APR-SEP	1680	2070	2330	88	2590	2980	2650
SPOKANE at Long Lake (2)	APR-JUL	1480	2120	2550	90	2980	3620	2850
	APR-SEP	1620	2290	2750	90	3210	3880	3070
CHAMOKANE CREEK near Long Lake	MAY-AUG	1.7	5.8	8.5	83	11.2	15.3	10.2

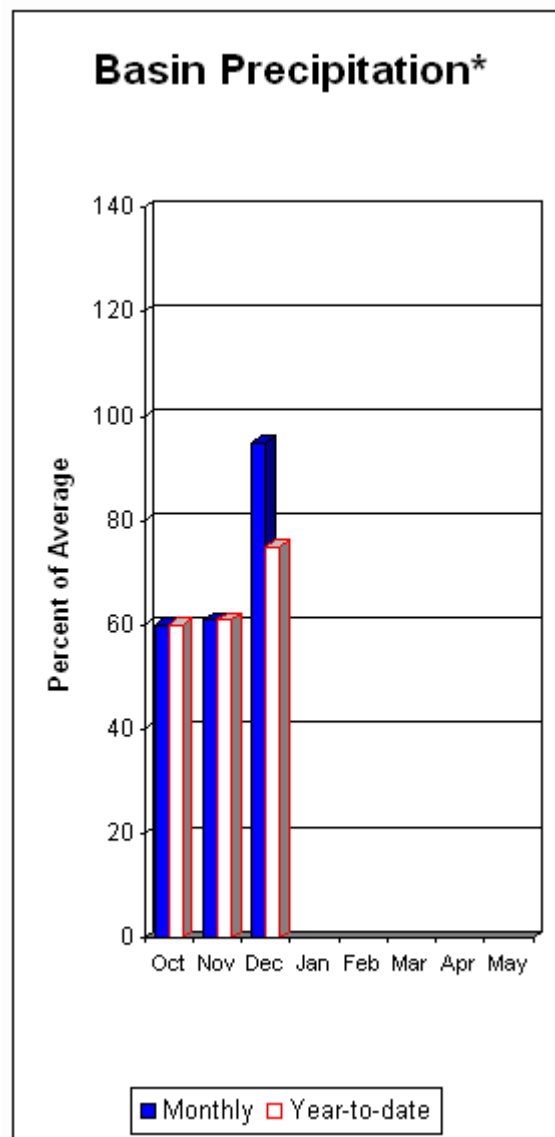
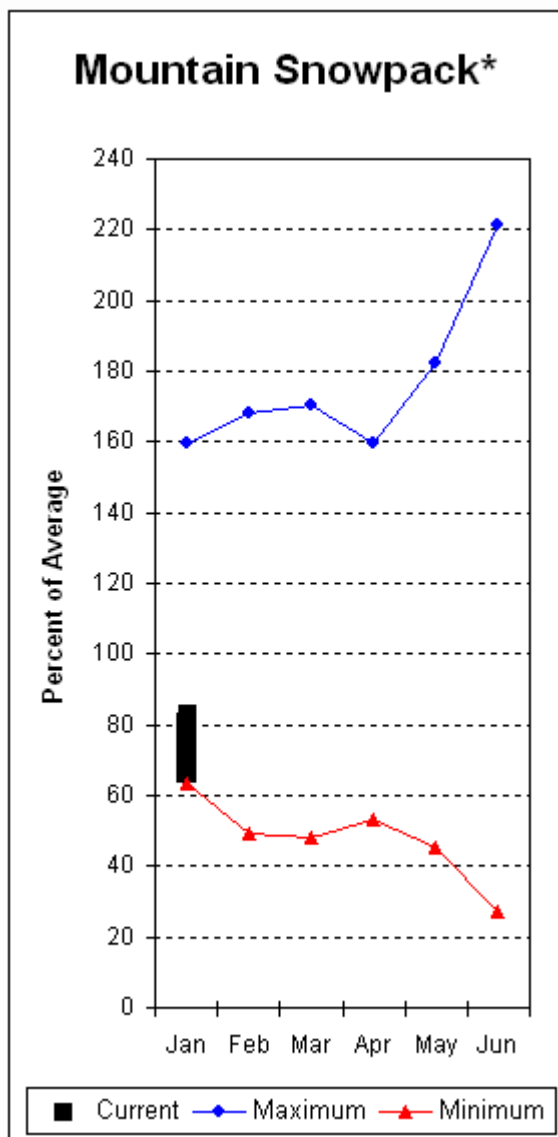
SPOKANE RIVER BASIN Reservoir Storage (1000 AF) - End of December					SPOKANE RIVER BASIN Watershed Snowpack Analysis - January 1, 2009			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of =====	
		This Year	Last Year	Avg			Last Yr	Average
					SPOKANE RIVER	11	84	81
					NEWMAN LAKE	1	92	96

* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1971-2000 base period.

- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
- (2) - The value is natural volume - actual volume may be affected by upstream water management.
- (3) - Median value used in place of average. The value listed under 30% is actually a 25% exceedance level.
The value listed under 70% is actually a 75% exceedance level.

Pend Oreille River Basins



*Based on selected stations

The April – September average forecast for the Priest River near the town of Priest River is 83% and the Pen Orielle below Box Canyon is 89%. December streamflow was 69% of average on the Pend Oreille River and 85% on the Columbia at the International Boundary. January 1 snow cover was 83% of average in the Pend Oreille Basin River Basin. Bunchgrass Meadows SNOTEL site had 10.1 inches of snow water on the snow pillow. Normally Bunchgrass would have 12.6 inches on January 1. Precipitation during December was 95% of average, bringing the year-to-date precipitation to 75% of average. Reservoir storage in the basin, including Lake Pend Oreille and Priest Lake was 61% of normal. Average temperatures were 10 degrees below normal for December and near normal for the water year.

For more information contact your local Natural Resources Conservation Service office.

Pend Oreille River Basins

Streamflow Forecasts - January 1, 2009

Forecast Point	Forecast Period	<<===== Drier ===== Future Conditions ===== Wetter =====>>				30-Yr Avg. (1000AF)		
		=====		Chance Of Exceeding *			=====	
		90% (1000AF)	70% (1000AF)	50% (1000AF)	(% AVG.)		30% (1000AF)	10% (1000AF)
=====								
PEND OREILLE Lake Inflow (2)	APR-JUL	10700	11000	11200	88	11400	11700	12700
	APR-SEP	11700	12100	12300	89	12500	12900	13900
PRIEST near Priest River (1,2)	APR-JUL	330	565	675	83	785	1020	815
	APR-SEP	360	605	720	83	835	1080	870
PEND OREILLE bl Box Canyon (2)	APR-JUL	7910	10000	11500	89	13000	15100	12900
	APR-SEP	8060	10800	12600	89	14400	17100	14100
COLUMBIA at Birchbank (1,2)	APR-JUL	29000	32400	33900	95	35400	38800	35700
	APR-SEP	34700	39300	41400	92	43500	48100	44800

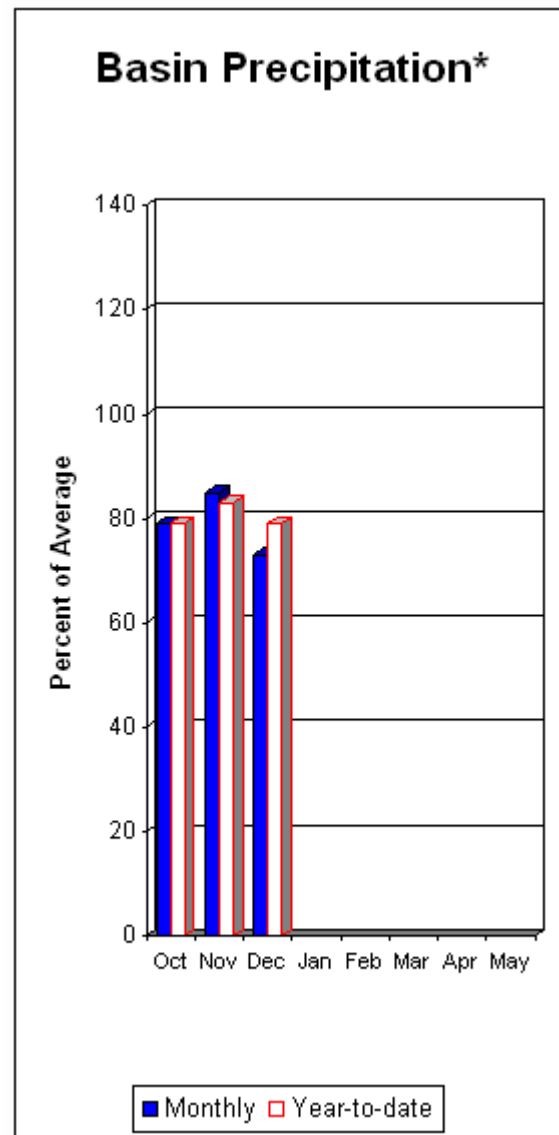
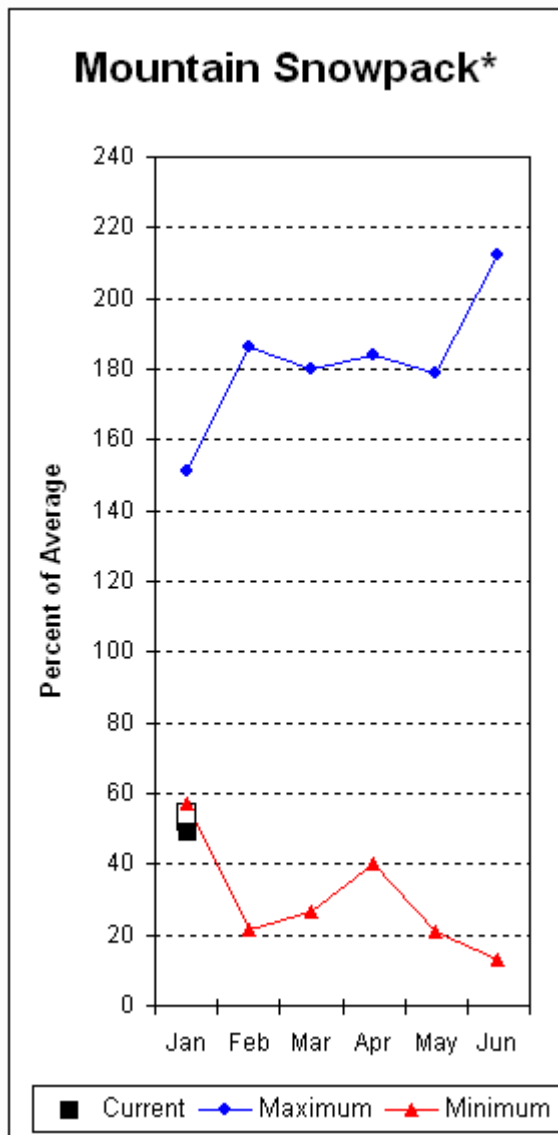
COLVILLE - PEND OREILLE RIVER BASINS					COLVILLE - PEND OREILLE RIVER BASINS			
Reservoir Storage (1000 AF) - End of December					Watershed Snowpack Analysis - January 1, 2009			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
					PEND OREILLE RIVER	9	69	70
					KETTLE RIVER	3	110	89

* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1971-2000 base period.

- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
- (2) - The value is natural volume - actual volume may be affected by upstream water management.
- (3) - Median value used in place of average. The value listed under 30% is actually a 25% exceedance level.
The value listed under 70% is actually a 75% exceedance level.

Upper Columbia River Basins



*Based on selected stations

Summer runoff average forecast for the Okanogan River is 72%, Similkameen River is 75%, Kettle River 86% and Methow River is 74%. January 1 snow cover on the Okanogan was 55% of average, Omak Creek was 42% and the Methow was 51%. December precipitation in the Upper Columbia was 73% of average, with precipitation for the water year at 79% of average. December streamflow for the Methow River was 123% of average, 91% for the Okanogan River and 109% for the Similkameen. Snow-water content at Salmon Meadows SNOTEL was 2.1 inches. Average for this site is 5.3 inches on January 1. Combined storage in the Conconully Reservoirs was 5,000-acre feet, which is 20% of capacity and 28% of the January 1 average. Temperatures were 5 degrees below normal for December and near normal for the water year.

For more information contact your local Natural Resources Conservation Service office.

Upper Columbia River Basins

Streamflow Forecasts - January 1, 2009

		<===== Drier ===== Future Conditions ===== Wetter =====>						
Forecast Point	Forecast Period	Chance Of Exceeding *						30-Yr Avg. (1000AF)
		90% (1000AF)	70% (1000AF)	50% (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	
Similkameen R nr Nighthawk (1)	APR-JUL	550	860	1000	74	1140	1450	1350
	APR-SEP	595	930	1080	75	1230	1560	1450
Okanogan R nr Tonasket (1)	APR-JUL	395	905	1140	72	1370	1890	1580
	APR-SEP	430	1010	1280	72	1550	2130	1770
Okanogan R at Malott (1)	APR-JUL	400	935	1180	72	1420	1960	1635
	APR-SEP	435	1040	1320	72	1600	2210	1826
Methow R nr Pateros	APR-SEP	435	610	730	74	850	1030	985
	APR-JUL	395	560	675	74	790	955	910
COLVILLE at Kettle Falls	APR-JUL	24	71	103	81	135	182	128
	APR-SEP	26	78	113	80	148	200	141
KETTLE near Laurier	APR-JUL	855	1310	1620	87	1920	2380	1870
	APR-SEP	910	1380	1700	86	2020	2490	1970
COLUMBIA at Birchbank (1,2)	APR-JUL	29000	32400	33900	95	35400	38800	35700
	APR-SEP	34700	39300	41400	92	43500	48100	44800
COLUMBIA at Grand Coulee Dm (1,2)	APR-JUL	45300	48500	50000	93	51500	54700	53800
	APR-SEP	50600	56500	59200	93	61900	67800	64000

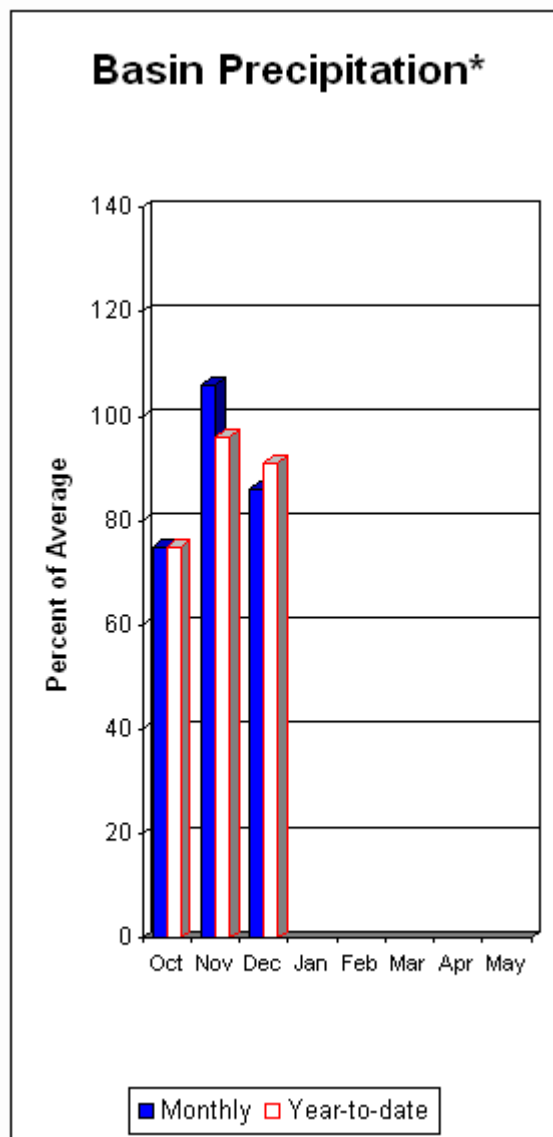
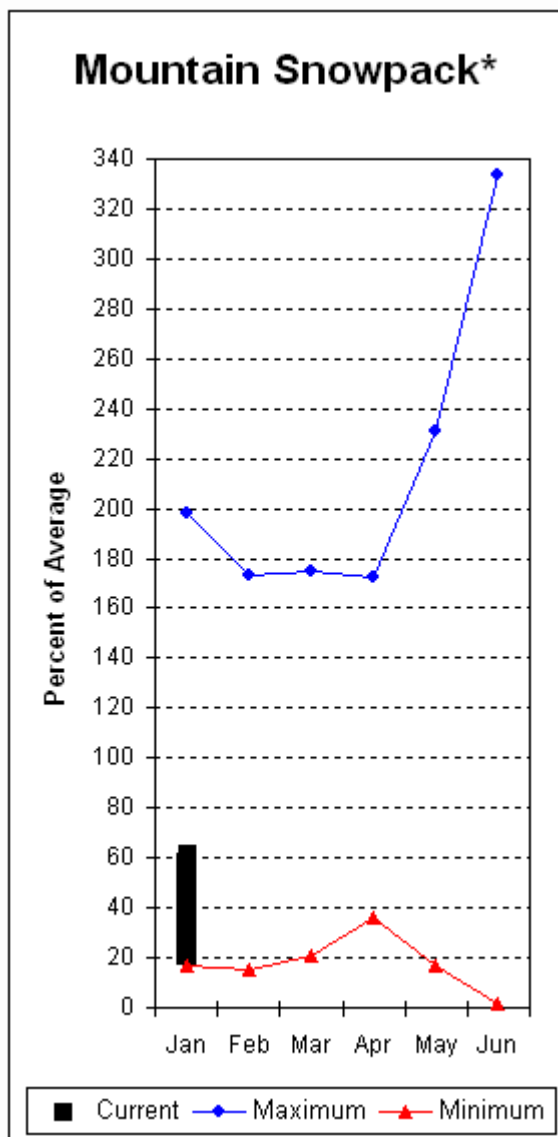
OKANOGAN - METHOW RIVER BASINS Reservoir Storage (1000 AF) - End of December					OKANOGAN - METHOW RIVER BASINS Watershed Snowpack Analysis - January 1, 2009			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
SALMON LAKE	10.5	2.3	7.8	8.5	OKANOGAN RIVER	9	76	68
CONCONULLY RESERVOIR	13.0	2.3	6.6	7.7	OMAK CREEK	1	59	42
					SIMILKAMEEN RIVER	2	50	51
					CONCONULLY LAKE	1	47	40
					METHOW RIVER	3	59	51

* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1971-2000 base period.

- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
- (2) - The value is natural volume - actual volume may be affected by upstream water management.
- (3) - Median value used in place of average. The value listed under 30% is actually a 25% exceedance level.
The value listed under 70% is actually a 75% exceedance level.

Central Columbia River Basins



*Based on selected stations

Precipitation during December was 86% of average in the basin and 91% for the year-to-date. Runoff for Entiat River is forecast to be 92% of average for the summer. The January-September average forecast for Chelan River is 83%, Wenatchee River at Plain is 86%, Stehekin River is 89% and Icicle Creek is 85%. December average streamflows on the Chelan River were 93% and on the Wenatchee River 88%. January 1 snowpack in the Wenatchee River Basin was 65% of average; the Chelan, 54%; the Entiat, 58%; Stemilt Creek, 76% and Colockum Creek, 55%. Reservoir storage in Lake Chelan was 398,000-acre feet, 100% of January 1 average and 59% of capacity. Lyman Lake SNOTEL had the most snow water with 16.7 inches of water. This site would normally have 29.7 inches on January 1. Temperatures were 5 degree below normal for December and near normal for the water year.

For more information contact your local Natural Resources Conservation Service office.

Central Columbia River Basins

Streamflow Forecasts - January 1, 2009

Forecast Point	Forecast Period	<<===== Drier ===== Future Conditions ===== Wetter =====>						30-Yr Avg. (1000AF)
		Chance Of Exceeding *						
		90% (1000AF)	70% (1000AF)	50% (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	
Stehekin R at Stehekin	APR-JUL	470	560	625	89	690	780	700
	APR-SEP	570	670	740	89	810	910	830
Chelan R at Chelan (2)	APR-JUL	670	790	870	83	950	1070	1050
	APR-SEP	750	895	990	83	1090	1230	1190
Entiat R nr Ardenvoir	APR-JUL	126	160	183	85	205	240	215
	APR-SEP	144	180	205	85	230	265	240
Wenatchee R at Plain	APR-JUL	670	820	920	86	1020	1170	1070
	APR-SEP	735	900	1010	86	1120	1280	1180
Icicle Ck nr Leavenworth	APR-JUL	198	240	265	86	290	330	310
	APR-SEP	220	260	290	85	320	360	340
Wenatchee R at Peshastin	APR-JUL	935	1130	1270	86	1410	1610	1480
	APR-SEP	1040	1260	1410	87	1560	1780	1630
Columbia R bl Rock Island Dam (2)	APR-JUL	37600	49500	54900	93	60300	72200	59000
	APR-SEP	44000	58000	64400	93	70800	84800	69500

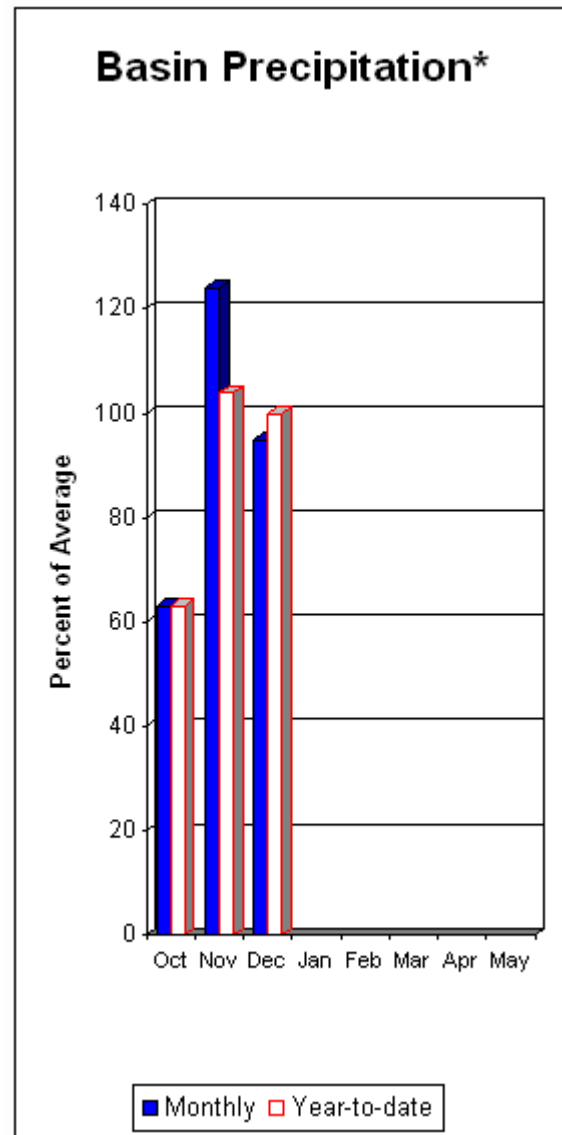
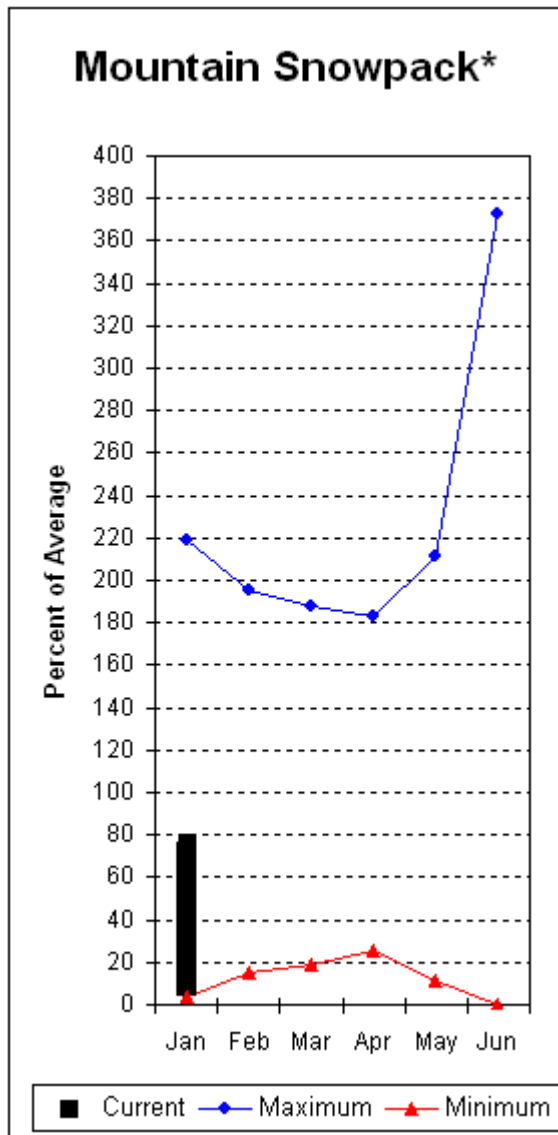
WENATCHEE - CHELAN RIVER BASINS Reservoir Storage (1000 AF) - End of December					WENATCHEE - CHELAN RIVER BASINS Watershed Snowpack Analysis - January 1, 2009			
Reservoir	Usable Capacity	*** This Year	Usable Last Year	Storage *** Avg	Watershed	Number of Data Sites	This Year as % of Last Yr	% of Average
CHELAN LAKE	676.1	397.5	346.3	396.9	CHELAN LAKE BASIN	4	61	54
					ENTIAT RIVER	1	51	58
					WENATCHEE RIVER	7	64	65
					STEMILT CREEK	1	79	76
					COLOCKUM CREEK	1	62	55

* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1971-2000 base period.

- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
- (2) - The value is natural volume - actual volume may be affected by upstream water management.
- (3) - Median value used in place of average. The value listed under 30% is actually a 25% exceedance level.
The value listed under 70% is actually a 75% exceedance level.

Upper Yakima River Basin



*Based on selected stations

January 1 reservoir storage for the Upper Yakima reservoirs was 519,000-acre feet, 130% of average. Forecasts for the Yakima River at Cle Elum are 89% of average and the Teanaway River near Cle Elum is at 88%. Lake inflows are all forecasted to be slightly below this summer. December streamflows within the basin were Yakima at Cle Elum at 56% and Cle Elum River near Roslyn at 61%. January 1 snowpack was 76% based upon 9 snow course and SNOTEL readings within the Upper Yakima Basin. Precipitation was 95% of average for December and 100% year-to-date for water. Volume forecasts for the Yakima Basin are for natural flow. As such, they may differ from the U.S. Bureau of Reclamation's forecast for the total water supply available, which includes irrigation return flow.

For more information contact your local Natural Resources Conservation Service office.

Upper Yakima River Basin

Streamflow Forecasts - January 1, 2009

Forecast Point	Forecast Period	<===== Drier ===== Future Conditions ===== Wetter =====>						
		Chance Of Exceeding *						
		90% (1000AF)	70% (1000AF)	50% (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
Keechelus Reservoir Inflow (2)	APR-JUL	73	96	111	92	126	149	121
	APR-SEP	83	106	122	92	138	161	133
Kachess Reservoir Inflow (2)	APR-JUL	64	85	100	90	115	136	111
	APR-SEP	73	94	108	90	122	143	120
Cle Elum Lake Inflow (2)	APR-JUL	255	320	365	89	410	475	410
	APR-SEP	285	355	400	89	445	515	450
Yakima R at Cle Elum (2)	APR-JUL	495	635	730	89	825	965	820
	APR-SEP	550	700	800	89	900	1050	900
Teanaway R bl Forks nr Cle Elum	APR-JUL	69	103	126	88	149	183	143
	APR-SEP	71	105	128	88	151	185	146

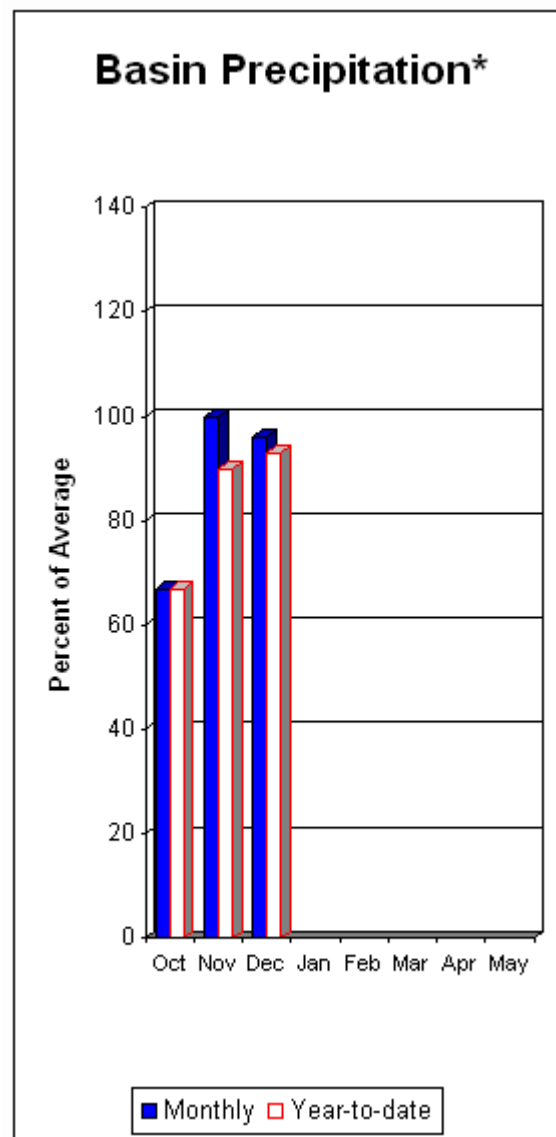
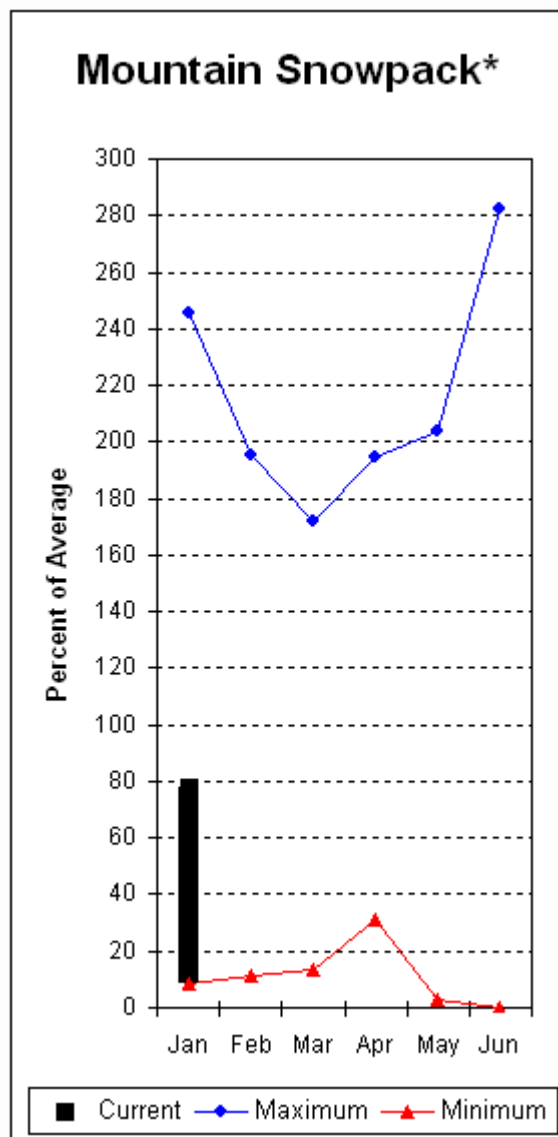
UPPER YAKIMA RIVER BASIN Reservoir Storage (1000 AF) - End of December					UPPER YAKIMA RIVER BASIN Watershed Snowpack Analysis - January 1, 2009			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
KEECHELUS	157.8	94.9	60.2	78.0	UPPER YAKIMA RIVER	9	64	76
KACHESS	239.0	174.3	134.4	125.5				
CLE ELUM	436.9	249.6	131.1	194.7				

* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1971-2000 base period.

- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
- (2) - The value is natural volume - actual volume may be affected by upstream water management.
- (3) - Median value used in place of average. The value listed under 30% is actually a 25% exceedance level.
The value listed under 70% is actually a 75% exceedance level.

Lower Yakima River Basin



*Based on selected stations

December average streamflows within the basin were: Yakima River near Parker, 60%; Naches River near Naches, 54%; and Yakima River at Kiona, 32%. January 1 reservoir storage for Bumping and Rimrock reservoirs was 106,000-acre feet, 95% of average. Forecast averages for Yakima River near Parker are 90%; American River near Nile, 93%; Ahtanum Creek, 91%; and Klickitat River near Glenwood, 80%. January 1 snowpack was 78% based upon 7 snow course and SNOTEL readings within the Lower Yakima Basin and Ahtanum Creek reported in at 66% of average. Precipitation was 96% of average for December and 93% year-to-date for water. Temperatures were 8 degrees below normal for December and 1 degree below for the water year. Volume forecasts for Yakima Basin are for natural flow. As such, they January differ from the U.S. Bureau of Reclamation's forecast for the total water supply available, which includes irrigation return flow.

For more information contact your local Natural Resources Conservation Service office.

Lower Yakima River Basin

Streamflow Forecasts - January 1, 2009

		<<===== Drier ===== Future Conditions ===== Wetter =====>						
Forecast Point	Forecast Period	Chance Of Exceeding *						30-Yr Avg. (1000AF)
		90% (1000AF)	70% (1000AF)	50% (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	
=====								
Bumping Lake Inflow (2)	APR-JUL	85	104	116	95	128	147	122
	APR-SEP	93	113	126	96	139	159	132
American R nr Nile	APR-JUL	73	89	100	93	111	127	108
	APR-SEP	80	98	110	93	122	140	118
Rimrock Lake Inflow (2)	APR-JUL	145	171	189	92	205	235	205
	APR-SEP	170	200	220	92	240	270	240
Naches R nr Naches (2)	APR-JUL	490	605	685	95	765	880	720
	APR-SEP	525	655	740	95	825	955	780
Ahtanum Ck at Union Gap	APR-JUL	11.8	21	27	90	33	42	30
	APR-SEP	13.4	23	29	91	35	45	32
Yakima R nr Parker (2)	APR-JUL	1110	1410	1620	90	1830	2130	1800
	APR-SEP	1230	1560	1780	90	2000	2330	1980

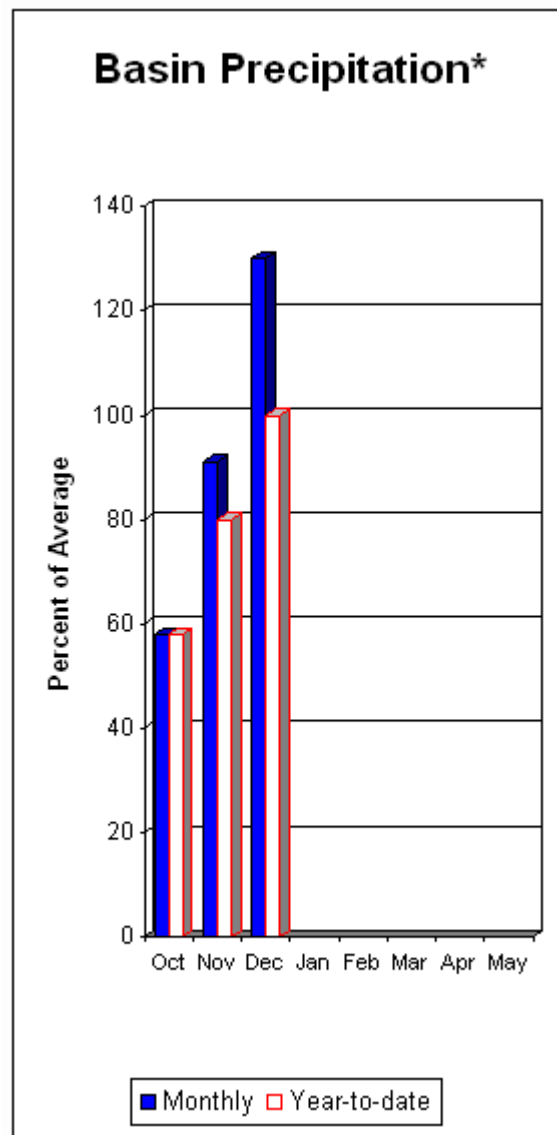
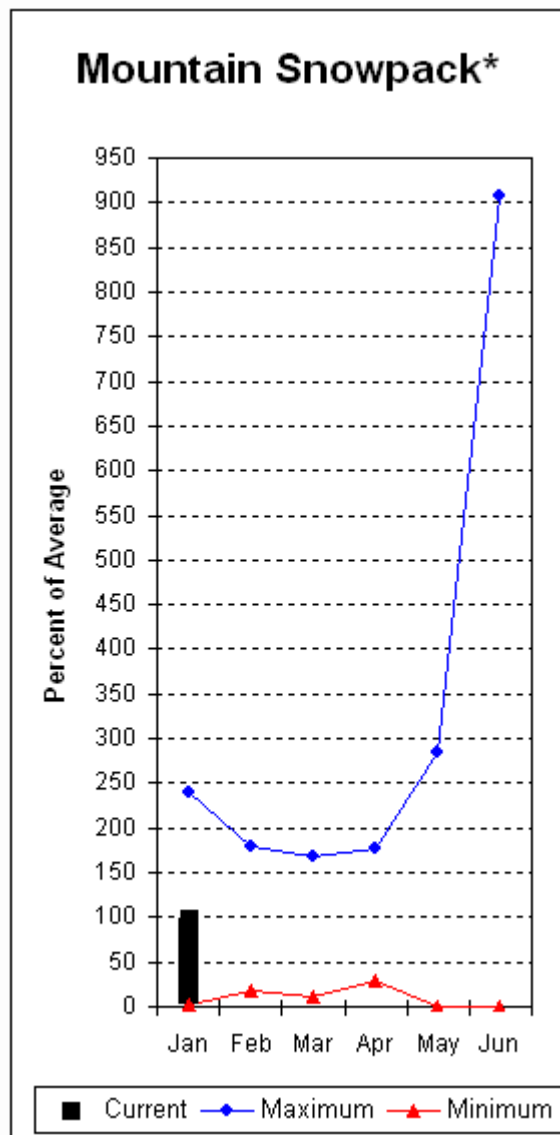
LOWER YAKIMA RIVER BASIN Reservoir Storage (1000 AF) - End of December					LOWER YAKIMA RIVER BASIN Watershed Snowpack Analysis - January 1, 2009			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
BUMPING LAKE	33.7	10.6	17.9	10.3				
RIMROCK	198.0	95.6	96.2	101.1				

* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1971-2000 base period.

- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
- (2) - The value is natural volume - actual volume may be affected by upstream water management.
- (3) - Median value used in place of average. The value listed under 30% is actually a 25% exceedance level.
The value listed under 70% is actually a 75% exceedance level.

Walla Walla River Basin



*Based on selected stations

December precipitation was 130% of average, maintaining the year-to-date precipitation at 100% of average. Snowpack in the basin was 99% of average. Streamflow forecasts are 100% of average for Mill Creek and 102% for the SF Walla Walla near Milton-Freewater. December streamflow was 65% of average for the Walla Walla River. Average temperatures were 6 degrees below normal for December and near average for the water year.

For more information contact your local Natural Resources Conservation Service office.

Walla Walla River Basin

Streamflow Forecasts - January 1, 2009

		<===== Drier =====		Future Conditions		===== Wetter =====>		
Forecast Point	Forecast Period	=====		Chance Of Exceeding *		=====		30-Yr Avg. (1000AF)
		90% (1000AF)	70% (1000AF)	50% (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	
SF Walla Walla R nr Milton-Freewater	MAR-SEP	69	77	82	101	87	95	81
	APR-JUL	45	51	55	102	59	65	54
	APR-SEP	57	63	68	102	73	79	67
Mill Ck nr Walla Walla	APR-JUL	17.2	21	24	100	27	31	24
	APR-SEP	21	25	28	100	31	35	28

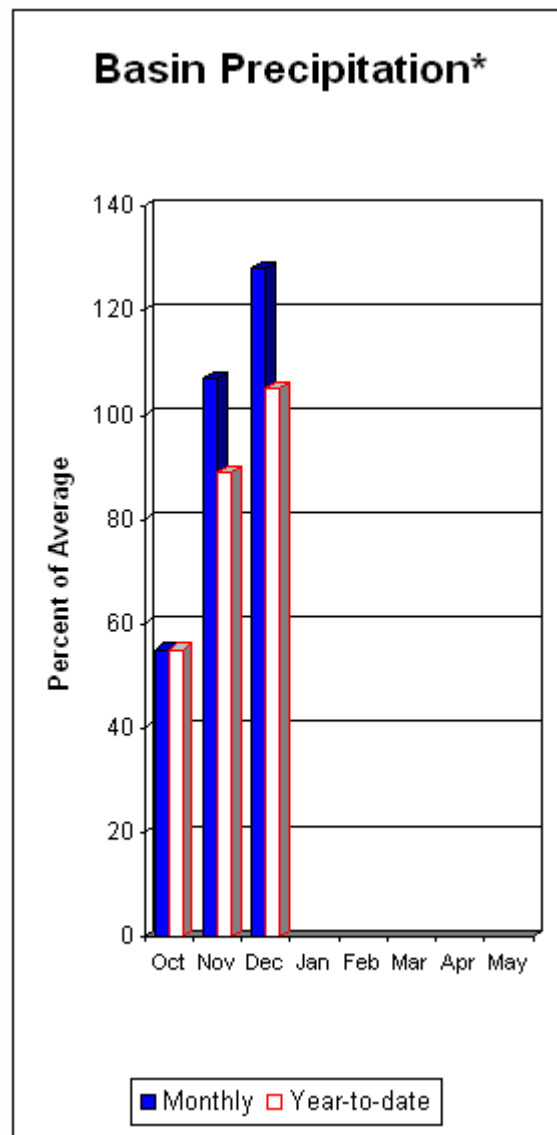
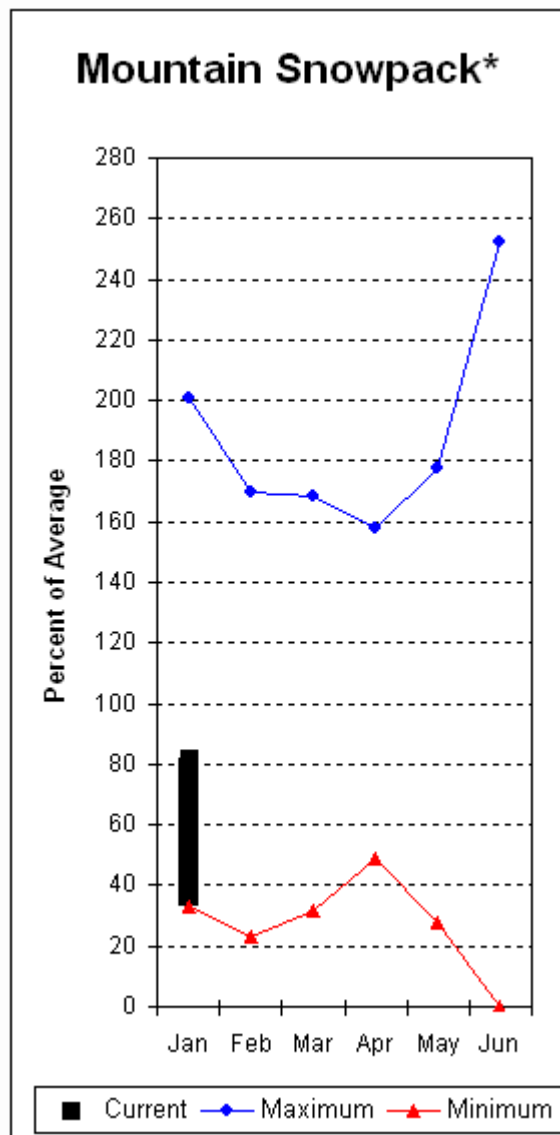
WALLA WALLA RIVER BASIN Reservoir Storage (1000 AF) - End of December					WALLA WALLA RIVER BASIN Watershed Snowpack Analysis - January 1, 2009			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
					WALLA WALLA RIVER	2	78	99

* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1971-2000 base period.

- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
- (2) - The value is natural volume - actual volume may be affected by upstream water management.
- (3) - Median value used in place of average. The value listed under 30% is actually a 25% exceedance level.
The value listed under 70% is actually a 75% exceedance level.

Lower Snake River Basin



*Based on selected stations

The April - September forecast is for 94% for Clearwater River at Spalding. The Snake and Grande Ronde rivers can expect summer flows to be about 86% and 94% of normal respectively. December precipitation was 128% of average, bringing the year-to-date precipitation to 105% of average. January 1 snowpack readings averaged 82% of normal. December streamflow was 68% of average for Snake River below Lower Granite Dam and 48% for Grande Ronde River near Troy. Average temperatures were 6 degrees below normal for December and near normal for the water year.

For more information contact your local Natural Resources Conservation Service office.

Lower Snake River Basin

Streamflow Forecasts - January 1, 2009

Forecast Point	Forecast Period	<<===== Drier ===== Future Conditions ===== Wetter =====>>		Chance Of Exceeding *				30-Yr Avg. (1000AF)
		90%	70%	50%		30%	10%	
		(1000AF)	(1000AF)	(1000AF)	(% AVG.)	(1000AF)	(1000AF)	
Grande Ronde R at Troy	MAR-JUL	741	1252	1484	94	1716	2227	1580
	APR-SEP	612	1076	1286	94	1496	1960	1370
CLEARWATER at Spalding (1,2)	APR-JUL	4555	6236	7000	94	7764	9445	7430
	APR-SEP	4807	6583	7390	94	8197	9973	7850
SNAKE blw Lower Granite Dam (1,2)	APR-JUL	7527	15004	18400	85	21796	29273	21600
	APR-SEP	8482	16884	20700	86	24516	32918	24100

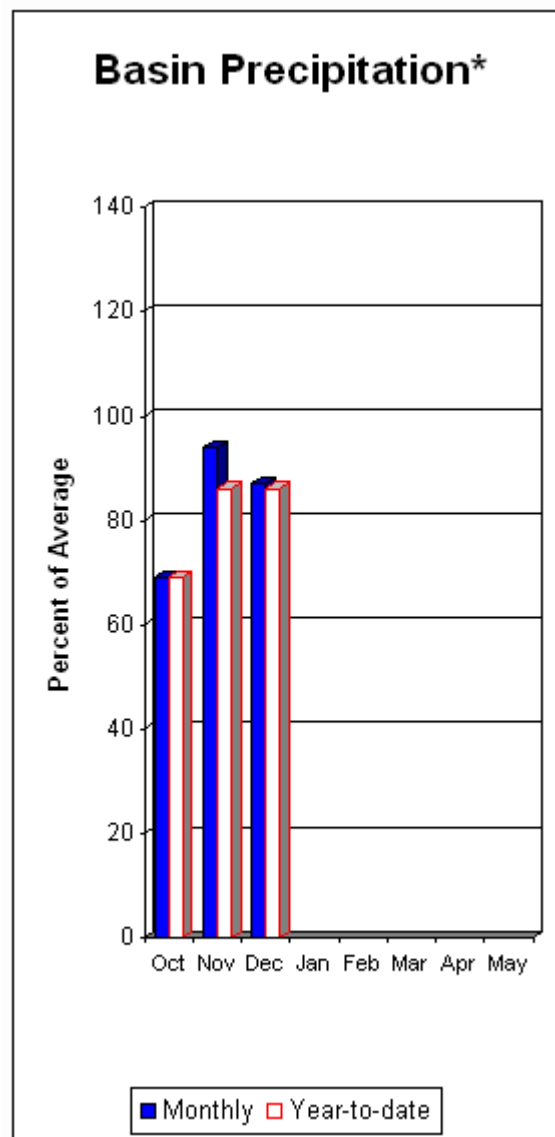
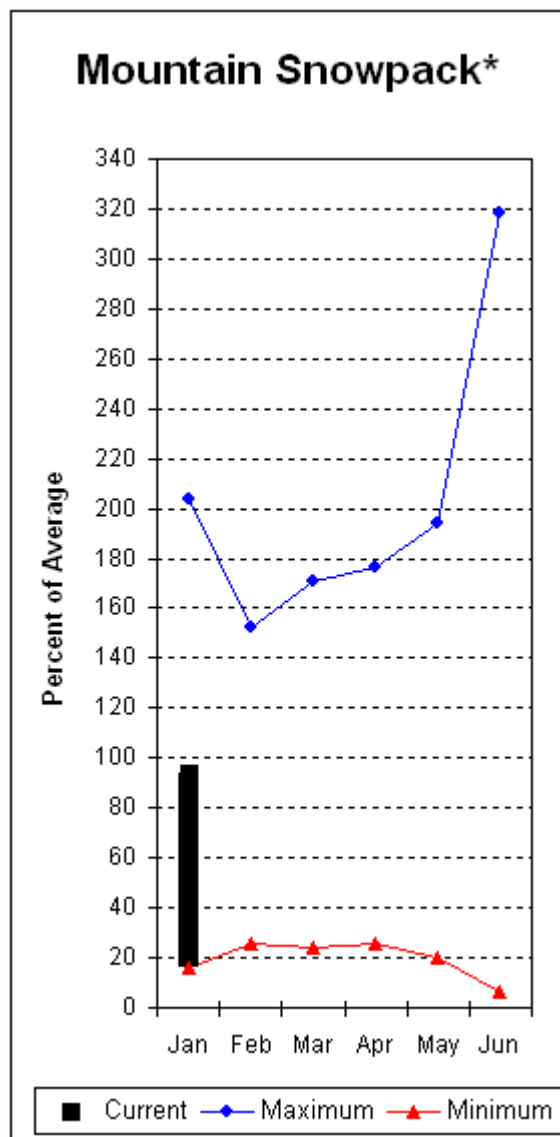
LOWER SNAKE RIVER BASIN Reservoir Storage (1000 AF) - End of December					LOWER SNAKE RIVER BASIN Watershed Snowpack Analysis - January 1, 2009			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
					LOWER SNAKE, GRANDE RONDE	10	83	82

* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1971-2000 base period.

- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
- (2) - The value is natural volume - actual volume may be affected by upstream water management.
- (3) - Median value used in place of average. The value listed under 30% is actually a 25% exceedance level.
The value listed under 70% is actually a 75% exceedance level.

Lower Columbia River Basins



*Based on selected stations

Forecasts for April – September streamflows within the basin are Lewis River at Ariel, 100% and Cowlitz River at Castle Rock, 100% of average. The Columbia at The Dalles is forecasted to have 88% of average flows this summer. December average streamflow for Cowlitz River was 45% and 40% for Lewis River. The Columbia River at The Dalles was 71% of average. December precipitation was 87% of average and the water-year average was 86%. January 1 snow cover for Cowlitz River was 91%, and Lewis River was 98% of average. Average temperatures were 3 degrees below normal during December and near normal for the water year. A new SNOTEL site named Calamity was installed, in cooperation with PacifiCorp, in the Lewis River Basin. Indian Rock SNOTEL was also a new installation in the Klickitat River Basin, in cooperation with Klickitat County and the City of Goldendale. We look forward to utilizing data from both new sites to help enhance forecasting efforts.

For more information contact your local Natural Resources Conservation Service office.

Lower Columbia River Basins

Streamflow Forecasts - January 1, 2009

Forecast Point	Forecast Period	<<===== Drier ===== Future Conditions ===== Wetter =====>						30-Yr Avg. (1000AF)
		=====		Chance Of Exceeding *		=====		
		90% (1000AF)	70% (1000AF)	(1000AF)	50% (% AVG.)	30% (1000AF)	10% (1000AF)	
=====								
Columbia R at The Dalles (2)	APR-JUL	49000	66500	74400	88	82300	99800	84600
	APR-SEP	57400	77700	87000	88	96300	117000	98600
Klickitat near Glenwood	APR-JUL	60	85	101	80	117	142	126
	APR-SEP	85	112	130	80	148	175	163
Klickitat River near Pitt WA	APR-JUL	250	320	370	80	420	490	462
	APR-SEP	305	385	445	80	505	585	559
LEWIS at Ariel (2)	APR-JUL	760	920	1030	100	1140	1300	1031
	APR-SEP	905	1070	1180	100	1290	1460	1176
COWLITZ R. bl Mayfield Dam (2)	APR-JUL	1240	1510	1690	100	1870	2140	1689
	APR-SEP	1430	1720	1920	100	2120	2410	1922
COWLITZ R. at Castle Rock (2)	APR-JUL	1790	2090	2300	100	2510	2810	2295
	APR-SEP	2060	2400	2640	100	2880	3220	2639

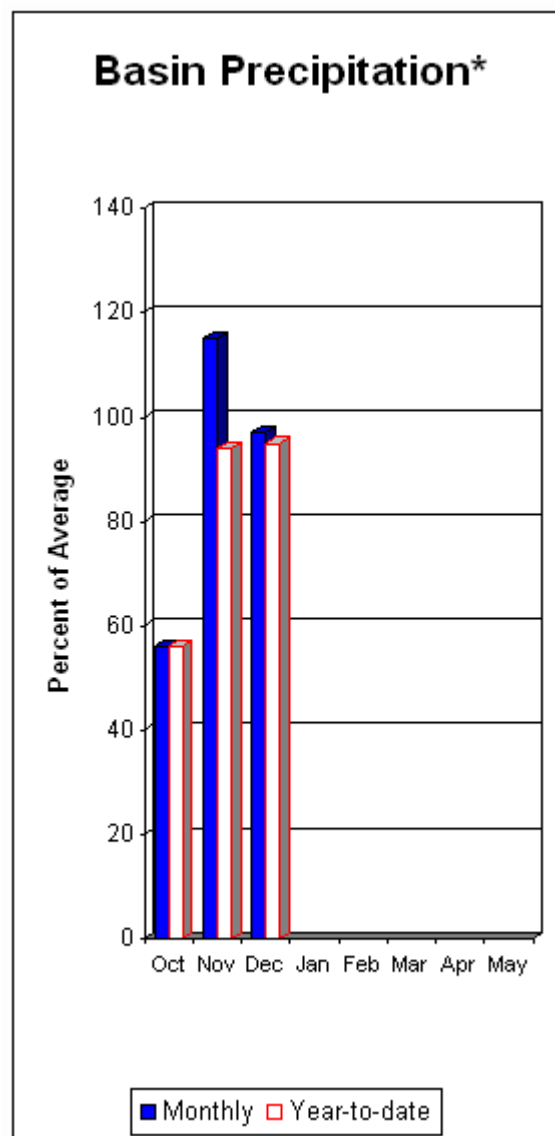
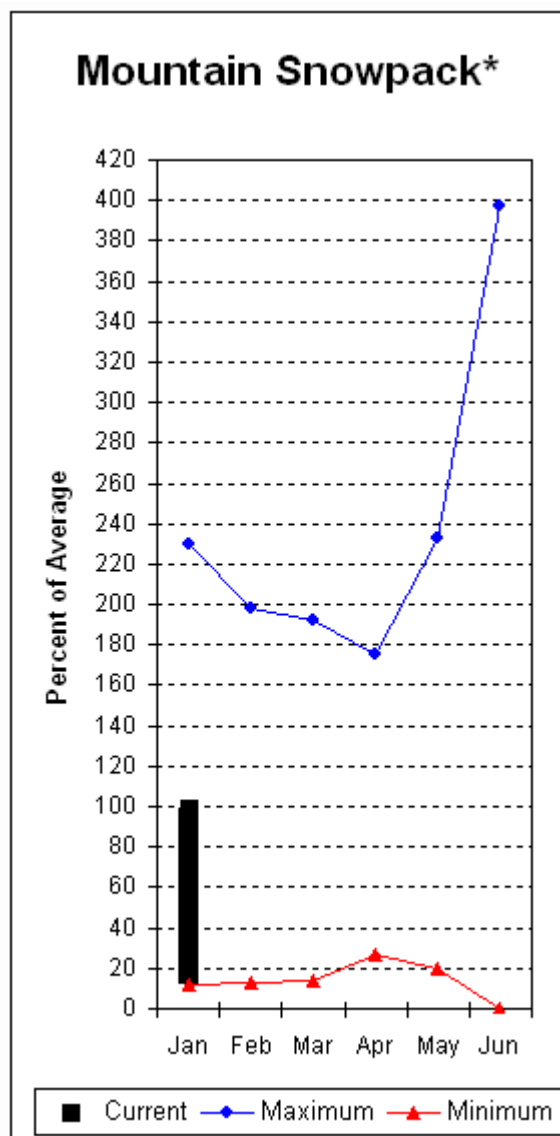
COWLITZ - LEWIS RIVER BASINS Reservoir Storage (1000 AF) - End of December					COWLITZ - LEWIS RIVER BASINS Watershed Snowpack Analysis - January 1, 2009			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
MOSSYROCK	0.0	1079.8	1216.7	---	LEWIS RIVER	5	72	98
SWIFT	0.0	672.2	636.1	---	COWLITZ RIVER	6	74	91
YALE	0.0	384.0	348.1	---				
MERWIN	0.0	415.1	387.5	---				

* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1971-2000 base period.

- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
- (2) - The value is natural volume - actual volume may be affected by upstream water management.
- (3) - Median value used in place of average. The value listed under 30% is actually a 25% exceedance level.
The value listed under 70% is actually a 75% exceedance level.

South Puget Sound River Basins



*Based on selected stations

Summer runoff is forecast to be 90% of normal for the Green River below Howard Hanson Dam and 98% for the White River near Buckley. January 1 snowpack was 84% of average for the White River, 107 % for Puyallup River and 106% in the Green River Basin. Water content on January 1 at Corral Pass SNOTEL, at an elevation of 6,000 feet, was 12.8 inches. This site has a January 1 average of 15.8 inches. December precipitation was 97% of average, bringing the water year-to-date to 95% of average for the basins. Average temperatures in the area were 5 degrees below normal for December and near normal for the water-year.

For more information contact your local Natural Resources Conservation Service office.

South Puget Sound River Basins

Streamflow Forecasts - January 1, 2009

		<<===== Drier ===== Future Conditions ===== Wetter =====>						
Forecast Point	Forecast Period	=====		Chance Of Exceeding *		=====		30-Yr Avg. (1000AF)
		90% (1000AF)	70% (1000AF)	50% (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	
=====								
WHITE near Buckley (1,2)	APR-JUL	290	380	420	96	460	550	440
	APR-SEP	360	460	505	95	550	650	534

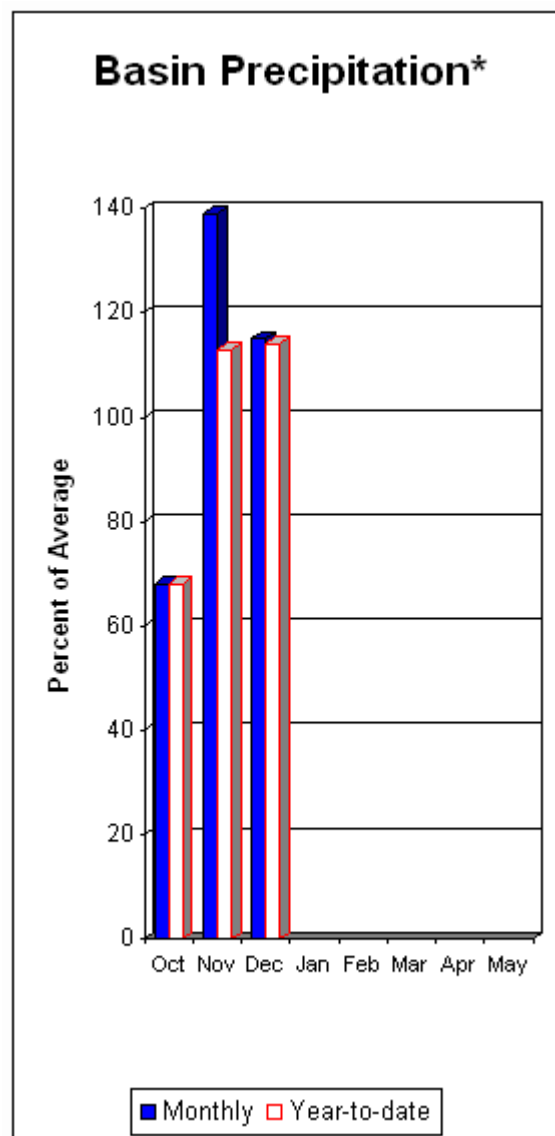
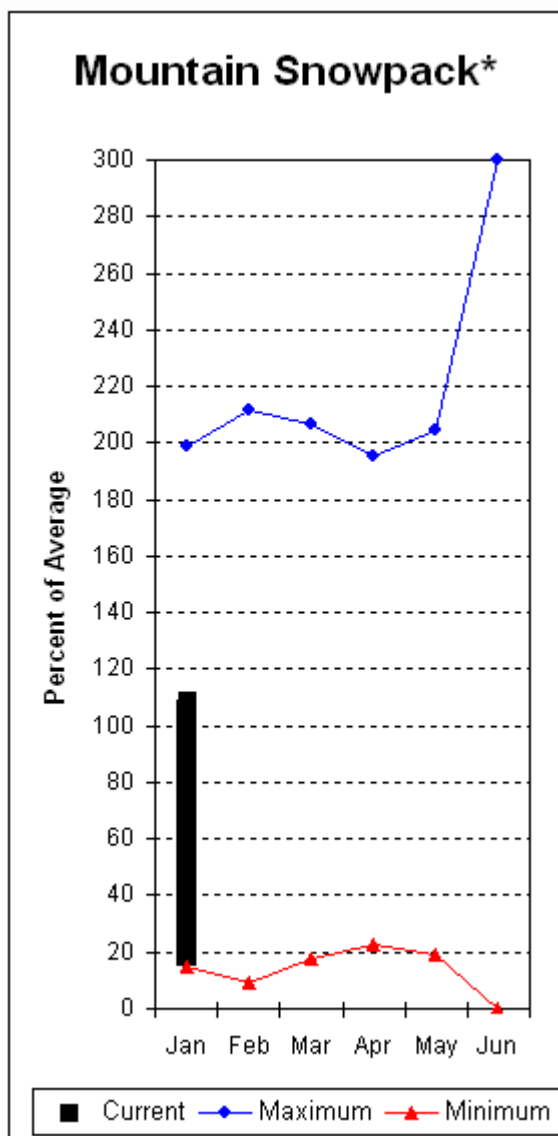
WHITE - GREEN - PUYALLUP RIVER BASINS Reservoir Storage (1000 AF) - End of December					WHITE - GREEN - PUYALLUP RIVER BASINS Watershed Snowpack Analysis - January 1, 2009			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
					WHITE RIVER	3	76	84
					GREEN RIVER	7	92	106
					PUYALLUP RIVER	5	96	107

* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1971-2000 base period.

- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
- (2) - The value is natural volume - actual volume may be affected by upstream water management.
- (3) - Median value used in place of average. The value listed under 30% is actually a 25% exceedance level.
The value listed under 70% is actually a 75% exceedance level.

Central Puget Sound River Basins



*Based on selected stations

Forecast for spring and summer flows are: 100% for Cedar River near Cedar Falls; 100% for Rex River; 100% for South Fork of the Tolt River; and 106% for Cedar River at Cedar Falls. Basin-wide precipitation for December was 115% of average, bringing water-year-to-date to 114% of average. January 1 average snow cover in Cedar River Basin was 117%, Tolt River Basin was 129%, Snoqualmie River Basin was 98%, and Skykomish River Basin was 92%. Olallie Meadows SNOTEL site, at 3960 feet, had 17.4 inches of water content. Average January 1 water content is 22.2 inches at Olallie Meadows. Temperatures were 5 degrees below average for December and near normal for the water-year.

For more information contact your local Natural Resources Conservation Service office.

Central Puget Sound River Basins

Streamflow Forecasts - January 1, 2009

Forecast Point	Forecast Period	<===== Drier ===== Future Conditions ===== Wetter =====>						
		=====		Chance Of Exceeding *		=====		30-Yr Avg. (1000AF)
		90% (1000AF)	70% (1000AF)	50% (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	
CEDAR near Cedar Falls	APR-JUL	51	64	73	100	82	95	73
	APR-SEP	58	71	80	100	89	102	80
REX near Cedar Falls	APR-JUL	16.3	21	25	100	29	34	25
	APR-SEP	19.5	25	28	100	31	37	28
CEDAR RIVER at Cedar Falls	APR-JUL	33	60	78	105	96	123	74
	APR-SEP	29	58	77	106	96	125	73
SOUTH FORK TOLT near Index	APR-JUL	8.0	12.0	14.7	100	17.4	21	14.7
	APR-SEP	11.0	14.5	16.9	100	19.3	23	16.9

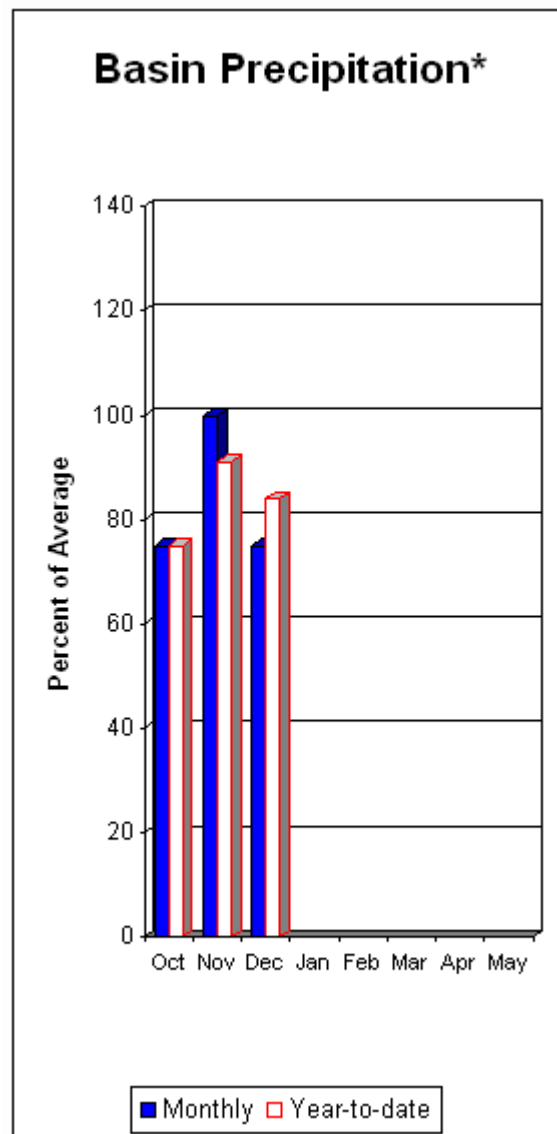
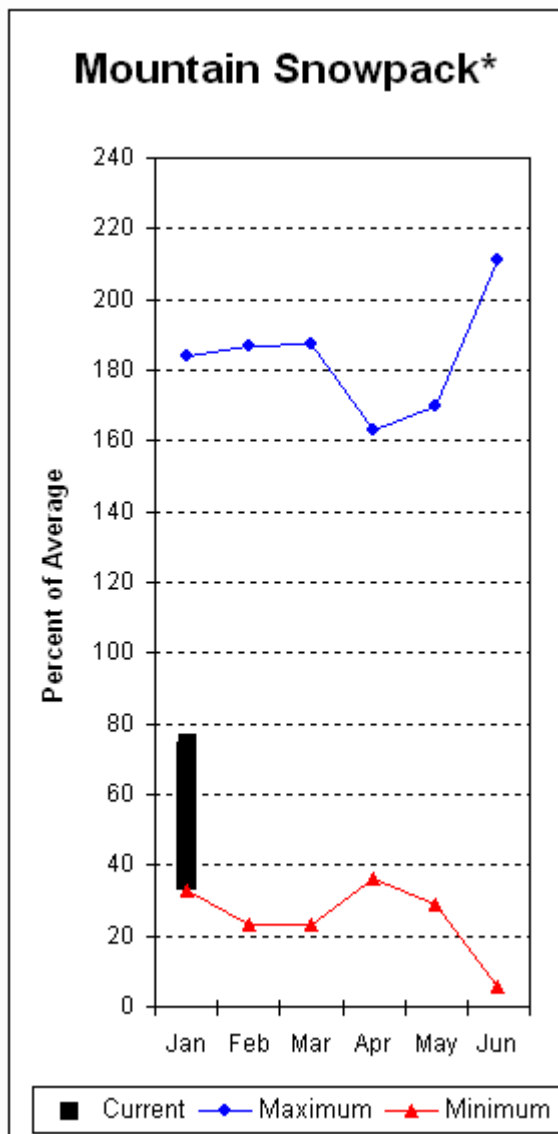
CENTRAL PUGET SOUND RIVER BASINS Reservoir Storage (1000 AF) - End of December					CENTRAL PUGET SOUND RIVER BASINS Watershed Snowpack Analysis - January 1, 2009			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
					CEDAR RIVER	4	73	117
					TOLT RIVER	2	91	129
					SNOQUALMIE RIVER	4	80	98
					SKYKOMISH RIVER	2	81	92

* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1971-2000 base period.

- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
- (2) - The value is natural volume - actual volume may be affected by upstream water management.
- (3) - Median value used in place of average. The value listed under 30% is actually a 25% exceedance level.
The value listed under 70% is actually a 75% exceedance level.

North Puget Sound River Basins



*Based on selected stations

Forecast for Skagit River streamflow at Newhalem is 86% of average for the spring and summer period. December streamflow in Skagit River was 52% of average. Other forecast points included Baker River at 82% and Thunder Creek at 80% of average. Basin-wide precipitation for December was 75% of average, bringing water-year-to-date to 84% of average. January 1 average snow cover in Skagit River Basin was 54%, and Nooksack River Basin was 96%. Baker River Basin snow surveys were not conducted this month. Rainy Pass SNOTEL, at 4,780 feet, had 9.1 inches of water content. Average January 1 water content is 19.9 inches at Rainy Pass. January 1 Skagit River reservoir storage was 100% of average and 82% of capacity. Average temperatures for December were 6 degrees below normal for the basin and 1 degree below average for the water year. Two new SNOTEL sites, Easy Pass and Noisy Glacier, were installed in the Baker River Basin in cooperation with Puget Sound Energy and the North Cascades National Park. They will be used for streamflow forecasting and glacier monitoring.

For more information contact your local Natural Resources Conservation Service office.

North Puget Sound River Basins

Streamflow Forecasts - January 1, 2009

Forecast Point	Forecast Period	<<===== Drier ===== Future Conditions ===== Wetter =====>				30-Yr Avg. (1000AF)		
		=====		Chance Of Exceeding *			=====	
		90% (1000AF)	70% (1000AF)	50% (1000AF)	(% AVG.)		30% (1000AF)	10% (1000AF)
THUNDER CREEK near Newhalem	APR-JUL	146	170	187	80	205	230	234
	APR-SEP	220	245	265	80	285	310	333
SKAGIT at Newhalem (2)	APR-JUL	1240	1450	1600	86	1750	1960	1864
	APR-SEP	1520	1750	1910	86	2070	2300	2217
BAKER RIVER near Concrete	APR-JUL	505	610	680	82	750	855	828
	APR-SEP	625	765	860	82	955	1090	1050

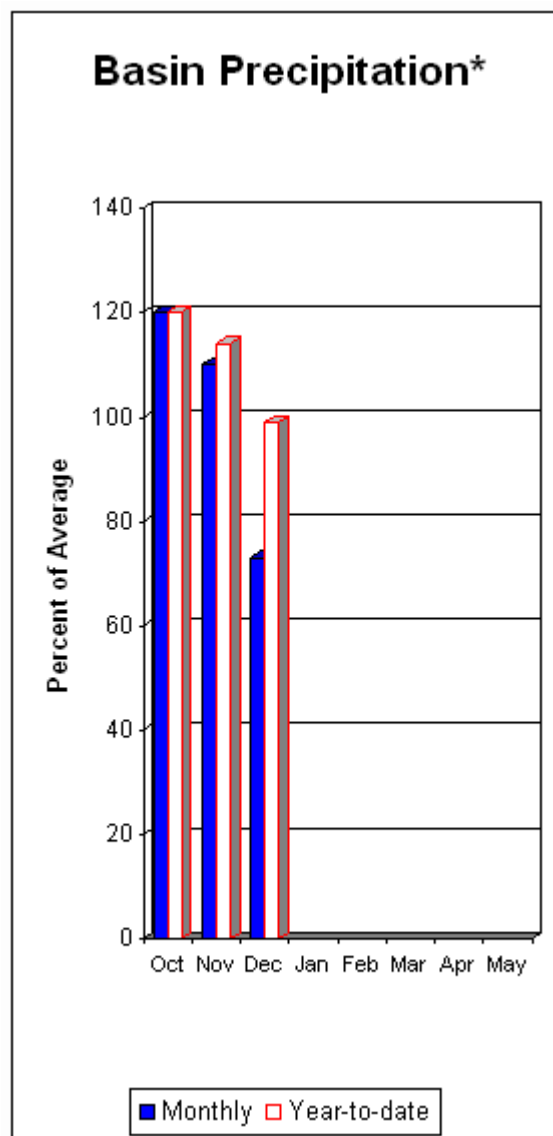
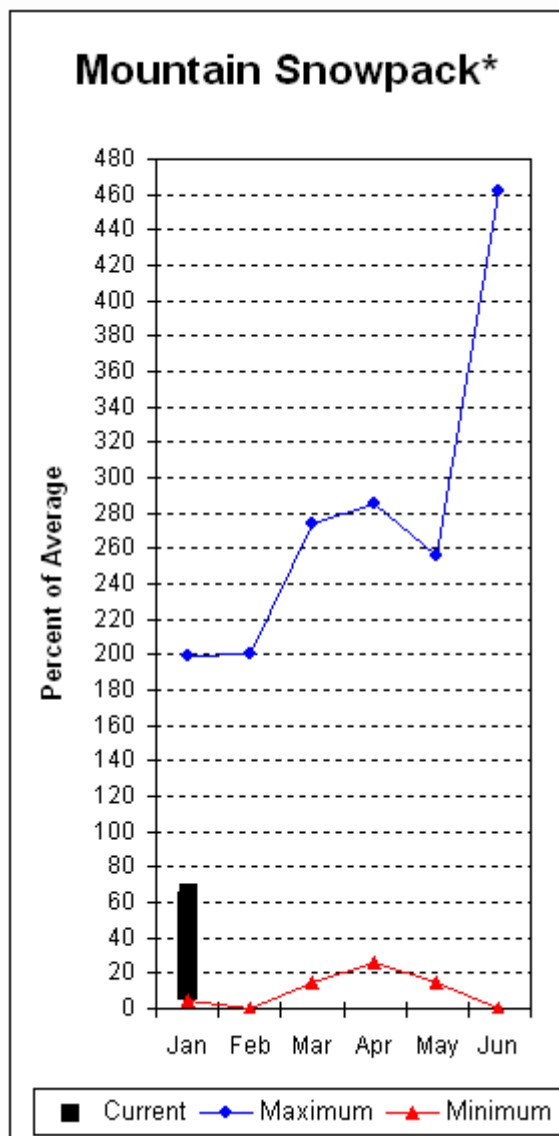
NORTH PUGET SOUND RIVER BASINS Reservoir Storage (1000 AF) - End of December					NORTH PUGET SOUND RIVER BASINS Watershed Snowpack Analysis - January 1, 2009			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
ROSS	1404.1	1141.4	1179.0	1142.1	SKAGIT RIVER	5	60	55
DIABLO RESERVOIR	90.6	87.1	86.4	85.3	BAKER RIVER	0	72	0
					NOOKSACK RIVER	2	67	96

* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1971-2000 base period.

- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
- (2) - The value is natural volume - actual volume may be affected by upstream water management.
- (3) - Median value used in place of average. The value listed under 30% is actually a 25% exceedance level.
The value listed under 70% is actually a 75% exceedance level.

Olympic Peninsula River Basins



*Based on selected stations

Forecasted average runoff for streamflow for the Dungeness River is 85% and Elwha River is 90%. December runoff in the Dungeness River was 35% of normal. Big Quilcene and Wynoochee rivers should expect near average runoff this summer also. December precipitation was 73% of average. Precipitation has accumulated at 99% of average for the water year. December precipitation at Quillayute was 11.18 inches. The thirty-year average for December is 14.5 inches. Olympic Peninsula snowpack averaged 66% of normal on January 1. Temperatures were 5 degrees below average for December and 1 and for the water year. A new SNOTEL site named Buckinghorse was installed this summer, in cooperation with the North Olympic Peninsula RC&D, NASA and the Olympic National Park Service, in the Upper Elwah River Basin. Buckinghorse will provide much anticipated data needs with the basin.

For more information contact your local Natural Resources Conservation Service office.

Olympic Peninsula River Basins

Streamflow Forecasts - January 1, 2009

		<<===== Drier ===== Future Conditions ===== Wetter =====>						
Forecast Point	Forecast Period	=====		Chance Of Exceeding *		=====		30-Yr Avg. (1000AF)
		90% (1000AF)	70% (1000AF)	50% (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	
=====								
DUNGENESS near Sequim	APR-JUL	44	80	105	85	130	166	124
	APR-SEP	42	94	129	85	164	215	152
ELWHA near Port Angeles	APR-JUL	330	355	375	90	395	420	419
	APR-SEP	395	430	450	90	470	505	503

OLYMPIC PENINSULA RIVER BASINS Reservoir Storage (1000 AF) - End of December					OLYMPIC PENINSULA RIVER BASINS Watershed Snowpack Analysis - January 1, 2009			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
					OLYMPIC PENINSULA	3	54	66

* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1971-2000 base period.

- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
- (2) - The value is natural volume - actual volume may be affected by upstream water management.
- (3) - Median value used in place of average. The value listed under 30% is actually a 25% exceedance level.
The value listed under 70% is actually a 75% exceedance level.

Issued by

Arlen Lancaster
Chief
Natural Resources Conservation Service
U.S. Department of Agriculture

Released by

Roylene Rides At The Door
State Conservationist
Natural Resources Conservation Service
Spokane, Washington

The Following Organizations Cooperate with the Natural Resources Conservation Service in Snow Survey Work*:

Canada	Ministry of Sustainable Resources Snow Survey, River Forecast Centre, Victoria, British Columbia
State	Washington State Department of Ecology Washington State Department of Natural Resources
Federal	Department of the Army Corps of Engineers U.S. Department of Agriculture Forest Service U.S. Department of Commerce NOAA, National Weather Service U.S. Department of Interior Bonneville Power Administration Bureau of Reclamation Geological Survey National Park Service Bureau of Indian Affairs Recourse Conservation & Development Councils
Local	City of Tacoma City of Seattle Chelan County P.U.D. Pacific Power and Light Company Puget Sound Power and Light Company Washington Water Power Company Snohomish County P.U.D. Colville Confederated Tribes Spokane County Yakama Indian Nation Whatcom County Pierce County Kalispel Tribe of Indians Spokane Indian Tribe Jamestown S'klallum Tribe
Private	Okanogan Irrigation District Wenatchee Heights Irrigation District Newman Lake Homeowners Association Whitestone Reclamation District

*Other organizations and individuals furnish valuable information for the snow survey reports. Their cooperation is gratefully acknowledged.



Washington Snow Survey Office
2021 E. College Way, Suite 214
Mount Vernon, WA 98273-2873



Washington Water Supply Outlook Report

**Natural Resources Conservation Service
Spokane, WA**

